Exhibit A

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EMPLOYMENT

Jan 00−present	**Professor**, Department of Computer Science, Columbia University, New York, NY 10027.
Jan 91−Dec 99	**Associate Professor**, Department of Computer Science, Columbia University, New York, NY 10027.
Sep 85−Dec 90	**Assistant Professor**, Department of Computer Science, Columbia University, New York, NY 10027.
Sep 77−Aug 85	**Research and Teaching Assistant**, Department of Computer Science, Brown University, Providence, RI 02912.
74−75	**Musician/Composer**, Rhode Island Feminist Theatre, Providence, RI 02906.
71−73	**Musician**, New Music Ltd., Providence, RI 02906.

EDUCATION

Ph.D., Computer Science, Brown University, 1987.

A.B., Music, Brown University, 1973.

JOURNAL PAPERS

Feiner, S., Nagy, S., and van Dam, A. An experimental system for creating and presenting interactive graphical documents. *ACM Transactions on Graphics*, 1(1), January 1982, 59−77.

Feiner, S., Salesin, D., and Banchoff, T. DIAL: A diagrammatic animation language. *IEEE Computer Graphics and Applications*, 2(7), September 1982, 43−54.

Feiner, S. APEX: An experiment in the automated creation of pictorial explanations. *IEEE Computer Graphics and Applications*, 5(11), November 1985, 29−37.

Feiner, S. Authoring large hypermedia documents with IGD. *Electronic Publishing*, 3(1), February 1990, 29−46.

Feiner, S. and McKeown, K. Automating the generation of coordinated multimedia explanations. *IEEE Computer*, 24(10), October 1991, 33–41. (Reprinted in M. Maybury and W. Wahlster (eds.), *Readings in Intelligent User Interfaces*, Morgan Kaufmann, Palo Alto, CA, 1998, 89–97.)

Duchamp, D., Feiner, S., and Maguire, G. Software technology for wireless mobile computing. *IEEE Network*, 5(6), November 1991, 12–18.

Feiner, S. and Seligmann, D. Cutaways and ghosting: Satisfying visibility constraints in dynamic 3D illustrations. *The Visual Computer*, 8(5–6), June 1992, 292–302.

Feiner, S., MacIntyre, B., and Seligmann, D. Knowledge-based augmented reality. *Communications of the ACM*, 36(7), July 1993, 52–62. (Reprinted in *ONR: Investing in the Future 1946–1996*, Office of Naval Research, Washington, DC, 1996, 1–10.)

Beshers, C. and Feiner, S. *AutoVisual*: Rule-based design of interactive multivariate visualizations. *IEEE Computer Graphics and Applications*, 13(4), July 1993, 41–49.

Kurlander, D. and Feiner, S. Inferring constraints from multiple snapshots. *ACM Transactions on Graphics*, 12(4), October 1993, 277–304.

Encarnacão, J., Foley, J., Bryson, S., Feiner, S., Gershon, N. Research issues in perception and user interfaces. *IEEE Computer Graphics and Applications*, 14(2), March 1994, 67–69. (Reprinted in L. Rosenblum, R. A. Earnshaw, J. Encarnacao, H. Hagen, A. Kaufman, S. Klimenko, G. Nielson, F. Post, D. Thalmann (eds.), *Scientific Visualization: Advances and Challenges*, Academic Press, London, 1994, pp. 467–472.)

Crutcher, L., Lazar, A., Feiner, S., and Zhou, M. Managing networks through a virtual world. *IEEE Parallel and Distributed Technology,* 3(2), Summer 1995, 4–13.

Feiner, S., Webster, A., Krueger, T., MacIntyre, B., and Keller, E. Architectural anatomy. *Presence*, 4(3), Summer 1995, 318–325.

MacIntyre, B. and Feiner, S. Future multimedia user interfaces. *Multimedia Systems*, 4(5), 1996, 250–268.

Feiner, S., and McKeown, K. An analysis of COMET and MAGIC using the standard reference model for intelligent multimedia presentation systems. *Computer Standards and Interfaces*, 18(6–7), December, 1997, 565–574.

Bordegoni, M., Faconti, G., Feiner, S., Maybury, M., Rist, T., Ruggieri, S., Trahanias, P., and Wilson, M. A standard reference model for intelligent multimedia presentation systems. *Computer Standards and Interfaces*, 18(6–7), December, 1997, 477–496.

Feiner, S., MacIntyre, B., Höllerer, T., and Webster, A. A touring machine: Prototyping 3D mobile augmented reality systems for exploring the urban environment. *Personal Technologies*, 1(4), December, 1997, 208–217.

Zhou, M. and Feiner, S. Efficiently planning coherent visual discourse. *Journal of Knowledge-Based Systems*, 10, 1998, 275–286.

McKeown, K., Feiner, S., Dalal, M. and Chang, S.-F. Generating multimedia briefings: Coordinating language and illustration. *Artificial Intelligence*, 103, 1998, 95–116.

Zhou, M. and Feiner, S. Automated production of visualizations: From heterogeneous information to coherent visual discourse. *Journal of Intelligent Information Systems*, 11(3), December 1998, 205–234.

Höllerer, T., Feiner, S., Terauchi, T., Rashid, G., and Hallaway, D. Exploring MARS: Developing indoor and outdoor user interfaces to a mobile augmented reality system. *Computers and Graphics*, 23(6), 1999, 779–785.

Feiner, S. Environment management for hybrid user interfaces. *IEEE Personal Communications*, 7(5), October 2000, 50–53.

Jordan, D., McKeown, K., Concepcion, K., Feiner, S., Hatzivassiloglou, V. Generation and evaluation of intraoperative inferences for automated healthcare briefings on patient status after bypass surgery. *Journal of the American Medical Informatics Association*, 8(3), May/June 2001, 267–280.

Höllerer, T., Feiner, S., Hallaway, D., Bell, B., Lanzagorta, M., Brown, D., Julier, S., Baillot, Y., and Rosenblum, L. User interface management techniques for collaborative mobile augmented reality. *Computers and Graphics*, 25(5), October 2001, 799–810.

Azuma, R., Baillot, Y., Behringer, R., Feiner, S., Julier, S., and MacIntyre, B. Recent advances in augmented reality. *IEEE Computer Graphics & Applications*, 21(6), November/December 2001, 34–47.

Bell, B., Feiner, S., and Höllerer, T. Information at a glance. *IEEE Computer Graphics & Applications*, 22(4), July/August 2002, 6–9.

Güven, S. and Feiner, S. A hypermedia authoring tool for augmented and virtual reality. *New Review of Hypermedia and Multimedia* (Special issue on hypermedia beyond the desktop), 9(1), 2003, 89–116.

Hallaway, D., Höllerer, T., and Feiner, S. Bridging the gaps: Hybrid tracking for adaptive mobile augmented reality. *Applied Artificial Intelligence* (Special Issue on AI in Mobile Systems), 18(6), July 2004, 477–500.

CONFERENCE PAPERS

Feiner, S., Nagy, S., and van Dam, A. An integrated system for creating and presenting complex computer–based documents. *Computer Graphics*, 15(3), August 1981 (*Proc. ACM SIGGRAPH '81,* Dallas, TX, August 3–7, 1981), 181–189.

Feiner, S. Research issues in generating graphical explanations. *Proc. Graphics Interface '85,* Montreal, Canada, May 27–31, 1985, 117–123.

Feiner, S. Seeing the forest for the trees: Hierarchical display of hypertext structure. *Proc. COIS '88 (ACM SIGOIS Conf. on Office Info. Sys.)*, Palo Alto, CA, March 23–25, 1988, 205–212.

Beshers, C. and Feiner, S. Real-time 4D animation on a 3D graphics workstation. *Proc. Graphics Interface '88*, Edmonton, June 6–10, 1988 (Morgan Kaufmann, Palo Alto, CA, 1988), 1–7.

Feiner, S. A grid-based approach to automating display layout. *Proc. Graphics Interface '88*, Edmonton, June 6–10, 1988 (Morgan Kaufmann, Palo Alto, CA, 1988), 192–197. (Reprinted in M. Maybury and W. Wahlster (eds.), *Readings in Intelligent User Interfaces*, Morgan Kaufmann, Palo Alto, CA, 1998, 249–254.)

Kurlander, D. and Feiner, S. Editable graphical histories. *Proc. 1988 IEEE Workshop on Visual Languages*, October 10–12, 1988, Pittsburgh, PA, 127–134. (Reprinted in E. Glinert (ed.), *Visual Programming Environments: Applications and Issues*, IEEE Computer Society Press, Los Alamitos, CA, 1990, 416–423.)

Chin, N. and Feiner, S. Near real-time shadow generation using BSP trees. *Computer Graphics,* 23(3), July 1989 (*Proc. ACM SIGGRAPH '89*, Boston, MA, July 31–August 4, 1989), 99–106.

Beshers, C. and Feiner, S. Scope: Automated generation of graphical interfaces. *Proc. UIST '89 (ACM SIGGRAPH Symp. on User Interface Software and Technology)*, Williamsburg, VA, November 13–15, 1989, 76–85.

Seligmann, D. and Feiner, S. Specifying composite illustrations with communicative goals. *Proc. UIST '89 (ACM SIGGRAPH Symp. on User Interface Software and Technology)*, Williamsburg, VA, November 13–15, 1989, 1–9.

Feiner, S. and McKeown, K. Generating coordinated multimedia explanations. *Proc. CAIA '90 (6th IEEE Conf. on Artificial Intelligence Applications)*, Santa Barbara, CA, March 5–9, 1990, 290–296.

Feiner, S. and Beshers, C. Visualizing *n*-dimensional virtual worlds with *n*-Vision. *Computer Graphics*, 24(2), March 1990 (*Proc. ACM 1990 Symp. on Interactive 3D Graphics,* Snowbird, UT, March 25–28, 1990), 37–38.

Karp, P. and Feiner, S. Issues in the automated generation of animated presentations. *Proc. Graphics Interface '90,* Halifax, Canada, May 14–18, 1990, 39–48.

Feiner, S. and McKeown, K. Coordinating text and graphics in explanation generation. *Proc. AAAI–90*, July 29–August 3, 1990, Boston, MA, 442–449.

3

Feiner, S. and Beshers, C. Worlds within worlds: Metaphors for exploring *n*-dimensional virtual worlds. *Proc. UIST '90 (ACM Symp. on User Interface Software and Technology)*, Snowbird, UT, October 3–5, 1990, 76–83. (Reprinted in S. Card, J. Mackinlay, and B. Shneiderman (eds.), *Readings in Information Visualization*, Morgan Kaufmann, Palo Alto, CA, 1999, 96–106.)

Feiner, S. and Seligmann, D. Dynamic 3D illustrations with visibility constraints. Patrikalakis, N. (ed.), *Scientific Visualization of Physical Phenomena* (*Proc. Computer Graphics International '91,* Cambridge, MA, June 26–28, 1991), Springer-Verlag, Tokyo, 1991, 525–543.

Seligmann, D. and Feiner, S. Automated generation of intent-based 3D illustrations. *Computer Graphics*, 25(4), July 1991 (*Proc. ACM SIGGRAPH '91*, Las Vegas, NV, July 28–August 2, 1991), 123–132. (Reprinted in M. Maybury and W. Wahlster (eds.), *Readings in Intelligent User Interfaces*, Morgan Kaufmann, Palo Alto, CA, 1998, 226–235.)

Feiner, S. and Shamash, A. Hybrid user interfaces: Breeding virtually bigger interfaces for physically smaller computers. *Proc. UIST '91 (ACM Symp. on User Interface Software and Technology)*, Hilton Head, SC, November 11–13, 1991, 9–17.

Elhadad, M., Feiner, S., McKeown, K., and Seligmann, D. Generating customized text and graphics in the COMET explanation testbed. *Proc. 1991 Winter Simulation Conference*, Phoenix, AZ, December 8–11, 1991, 1058–1065.

Chin, N. and Feiner, S. Fast object-precision shadow generation for area light sources using BSP trees. *Computer Graphics* (Special Issue on *1992 Symposium on Interactive 3D Graphics*, Cambridge, MA, March 30–April 1, 1992), March 1992, 21–30.

Kurlander, D. and Feiner, S. Interactive constraint-based search and replace. *Proc. CHI '92*, Monterey, CA, May 3–7, 1992, 609–618.

Feiner, S., MacIntyre, B., and Seligmann, D. Annotating the real world with knowledge-based graphics on a see-through head-mounted display. *Proc. Graphics Interface '92*, Vancouver, Canada, May 11–15, 1992, 78–85.

McKeown, K., Feiner, S., Robin, J., Seligmann, D., and Tanenblatt, M. Generating cross-references for multimedia explanation. *Proc. AAAI-92*, San Jose, CA, July 12–17, 1992, 9–16.

Beshers, C. and Feiner, S. Automated design of virtual worlds for visualizing multivariate relations. *Proc. Visualization '92*, Boston, MA, October 19–23, 1992, 283–290.

Kurlander, D., and Feiner, S. A history-based macro by example system. *Proc. UIST '92 (ACM Symp. on User Interface Software and Technology)*, Monterey, CA, November 15–18, 1992, 99–106. (Reprinted in A. Cypher (ed.), *Watch What I Do: Programming by Demonstration*, MIT Press, Cambridge, MA, 1993, 323–338.)

Seligmann, D. and Feiner, S. Supporting interactivity in automated 3D illustrations. *Proc. 1993 Int. Workshop on Intelligent User Interfaces*, Orlando, FL, January 4–7, 1993, 37–44.

Karp, P. and Feiner, S. Automated presentation planning of animation using task decomposition with heuristic reasoning. *Proc. Graphics Interface '93*, Toronto, Canada, May 17–21, 1993, 118–127.

Crutcher, L., Lazar, A., Feiner, S., and Zhou, M. Management of broadband networks using a 3D virtual world. *Proc. HPDC-2 (2nd International Symposium on High Performance Distributed Computing)*, Spokane, WA, July 21–23, 1993, 306–315.

Feiner, S., Zhou, M., Crutcher, L., and Lazar, A. A virtual world for network management. *Proc. VRAIS '93 (IEEE Virtual Reality Annual International Symposium)*, Seattle, WA, September 18–22, 1993, 55–61.

Feiner, S., MacIntyre, B., Haupt, M., and Solomon, E. Windows on the world: 2D windows for 3D augmented reality. *Proc. UIST '93 (ACM Symp. on User Interface Software and Technology)*, Atlanta, GA, November 3–5, 1993, 145–155.

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Feiner, S. Research in 3D user interface design at Columbia University. *CHI '96 (Conf. on Human Factors in Computing Systems) Conference Companion*, Vancouver, British Columbia, Canada, April 14–18, 1996, 129–130.

Webster, A., Feiner, S., MacIntyre, B., Massie, W., and Krueger, T. Augmented reality in architectural construction, inspection and renovation. *Proc. ASCE Third Congress on Computing in Civil Engineering*, Anaheim, CA, June 17–19, 1996, 913–919.

Dalal, M., Feiner, S., McKeown, K., Jordan, D., Allen, B., and alSafadi, Y. MAGIC: An experimental system for generating multimedia briefings about post-bypass patient status. *Proc. 1996 AMIA Annual Fall Symp. (Journal of the American Medical Informatics Association Symposium Supplement),* Washington, DC, October 26–30, 1996, 684–688.

Zhou, M. and Feiner, S. Data characterization for automatically visualizing heterogeneous information. *Proc. INFOVIS '96 (IEEE Symp. on Information Visualization)*, San Francisco, CA, October 28–29, 1996, 13–20.

MacIntyre, B. and Feiner, S. Language-level support for exploratory programming of distributed virtual environments. *Proc. UIST '96 (ACM Symp. on User Interface Software and Technology)*, Seattle, WA, November 6–8, 1996, 83–94.

Dalal, M., Feiner, S., McKeown, K., Pan, S., Zhou, M., Höllerer, T Shaw, J., Feng, Y., and Fromer, J. Negotiation for automated generation of temporal multimedia presentations. *Proc. ACM Multimedia '96*, Boston, MA, November 18–22, 1996, 55–64.

Zhou, M. and Feiner, S. Top-down hierarchical planning of coherent visual discourse. *Proc. IUI '97 (1997 Int. Conf. on Intelligent User Interfaces)*, Orlando, FL, January 6–9, 1997, 129–136.

Beshers, C. and Feiner, S. Generating efficient virtual worlds for visualization using partial evaluation and dynamic compilation. *Proc. PEPM '97 (ACM SIGPLAN Symp. on Partial Evaluation and Semantics-Based Program Manipulation)*, Amsterdam, The Netherlands, June 12–13, 1997, 107–115.

Zhou, M. and Feiner, S. The representation and use of a visual lexicon for automated graphics generation. *Proc. IJCAI '97 (1997 Int. Joint Conf. on Artificial Intelligence)*, Nagoya, Japan, August 23–29, 1997, 1056–1062.

Feiner, S., MacIntyre, B., Höllerer, T., and Webster, A. A touring machine: Prototyping 3D mobile augmented reality systems for exploring the urban environment. *Proc. ISWC '97 (Int. Symp. on Wearable Computers)*, Cambridge, MA, October 13–14, 1997, 74–81.

Zhou, M. and Feiner, S. Visual task characterization for automated visual discourse synthesis. *Proc. CHI '98 (ACM Conf. on Human Factors in Computing Systems)*, Los Angeles, CA, April 18–23, 1998, 392–399.

MacIntyre, B. and Feiner, S. A distributed 3D graphics library. *Proc. ACM SIGGRAPH '98*, Orlando, FL, July 19–24, 1998, 361–370.

Butz, A., Beshers, C., and Feiner, S. Of vampire mirrors and privacy lamps: Privacy management in multi-user augmented environments (Tech Note). *Proc. UIST '98 (ACM Symp. on User Interface Software and Technology)*, San Francisco, CA, November 2–4, 1998, 171–172.

Höllerer, T., Feiner, S., and Pavlik, J. Situated documentaries: Embedding multimedia presentations in the real world. *Proc. ISWC '99 (IEEE Int. Symp. on Wearable Computers),* San Francisco, CA, October 18–19, 1999, 79–86.

Butz, A., Höllerer, T., Feiner, S., MacIntyre, B., and Beshers, C. Enveloping users and computers in a collaborative 3D augmented reality. *Proc. IWAR '99 (IEEE and ACM Int. Workshop on Augmented Reality),* San Francisco, CA, October 20–21, 1999, 35–44.

Feiner, S. The importance of being mobile: Some social consequences of wearable augmented reality systems. *Proc. IWAR '99 (IEEE and ACM Int. Workshop on Augmented Reality),* San Francisco, CA, October 20–21, 1999, 145–148.

Julier, S., Lanzagorta, M., Baillot, Y., Rosenblum, L., Feiner, S., Höllerer, T., and Sestito, S. Information filtering for mobile augmented reality. *Proc. ISAR 2000 (IEEE and ACM Int. Symp. on Augmented Reality)*, Munich, Germany, October 5–6, 2000, 3–11.

McKeown, K., Jordan, D., Feiner, S., Shaw, J., Chen, E., Ahmad, S., Kushniruk, A., and Patel, V. A study of communication in the cardiac surgery intensive care unit and its implications for automated briefing. *Proc. AMIA 2000 Ann. Symp. (American Medical Informatics Assoc.)*, Los Angeles, CA, November 4–8, 2000, 570–574.

Bell, B. and Feiner, S. Dynamic space management for user interfaces. *Proc. UIST 2000 (ACM Symp. on User Interface Software and Technology)*, San Diego, CA, November 5–8, 2000 (*CHI Letters,* vol. 2, no. 2), 239–248.

Lok, S. and Feiner, S. A survey of automated layout techniques for information presentations. *Proc. Smart Graphics 2001 (First Int. Symp. on Smart Graphics)* Hawthorne, NY, March 21–23, 2001, 61–68.

McKeown, K., Chang, S-F., Cimino, J., Feiner, S., Friedman, C., Gravano, L., Hatzivassiloglou, V., Johnson, S., Jordan, D., Klavans, J., Kushniruk, A., Patel, V., and Teufel, S. PERSIVAL: A system for personalized search and summarization over multimedia healthcare information *Proc. JCDL 2001 (ACM/IEEE Joint Conference on Digital Libraries)*, Roanoke, VA, June 24–28, 2001, 331-340.

Bell, B., Feiner, S., and Höllerer, T. View management for virtual and augmented reality. *Proc. UIST 2001 (ACM Symp. on User Interface Software and Technology)*, Orlando, FL, November 11–14, 2001 (*CHI Letters,* vol. 3, no. 2), 101–110. (Recipient of *ACM UIST 2001 Best Student Paper Prize*)

Lok, S. and Feiner, S. The AIL automated interface layout system [poster]. *Proc. IUI 2002 (Int. Conf. on Intelligent User Interfaces)*, San Francisco, CA, January 13–16, 2002, 202–203.

Lok, S., Feiner, S., Chiong, W., and Hirsch, Y. A graphical user interface toolkit approach to thin-client computing. *Proc. WWW 2002 (Eleventh Int. World Wide Web Conf.)*, Honolulu, HI, May 7–11, 2002, 718–725.

Blaskó, G. and Feiner, S. A menu interface for wearable computing [poster]. *Proc. ISWC '02 (IEEE Int. Symp. on Wearable Computers),* Seattle, WA, October 7–10, 2002, 164–165.

Bell, B., Höllerer, T., and Feiner, S. An annotated situation-awareness aid for augmented reality. *Proc. UIST 2002 (ACM Symp. on User Interface Software and Technology)*, Paris, France, October 27–30, 2002 (*CHI Letters,* vol. 4, no. 2), 213–216.

Olwal, A., Benko, H., and Feiner, S. SenseShapes: Using statistical geometry for object selection in a multimodal augmented reality system [poster]. *Proc. ISMAR 2003 (IEEE and ACM Int. Symp. on Mixed and Augmented Reality),* Tokyo, Japan, October 7–10, 2003, 300–301.

Güven, S. and Feiner, S. Authoring 3D hypermedia for wearable augmented and virtual reality. *Proc. ISWC 2003 (IEEE Int. Symp. on Wearable Computers)*, White Plains, NY, October 21–23, 2003, 118-126.

Hallaway, D., Höllerer, T., and Feiner, S. Coarse, inexpensive, infrared tracking for wearable computing. *Proc. ISWC 2003 (IEEE Int. Symp. on Wearable Computers)*, White Plains, NY, October 21–23, 2003, 69–78.

Blaskó, G. and Feiner, S. An extended menu navigation interface using multiple pressure-sensitive strips [poster]. *Proc. ISWC 2003 (IEEE Int. Symp. on Wearable Computers)*, White Plains, NY, October 21–23, 2003, 238–239.

Ishak, E. and Feiner. S. Free-space transparency: Exposing hidden content through unimportant screen space [poster]. *UIST 2003 (ACM Symp. on User Interface Software and Technology) Conf. Supplement*, Vancouver, BC, November 2–5, 2003, 75–76.

Olwal, A. and Feiner, S. The flexible pointer: An interaction technique for selection in augmented and virtual reality [poster]. *UIST 2003 (ACM Symp. on User Interface Software and Technology) Conf. Supplement*, Vancouver, BC, November 2–5, 2003, 81–82.

Olwal, A. and Feiner, S. Rubbing the fisheye: Precise touch-screen interaction with gestures and fisheye views [poster]. *UIST 2003 (ACM Symp. on User Interface Software and Technology) Conf. Supplement*, Vancouver, BC, November 2–5, 2003, 83–84.

Kaiser, E., Olwal, A., McGee, D., Benko, H., Corradini, A., Li, X., Cohen, P., and Feiner, S. Mutual disambiguation of 3D multimodal interaction in augmented and virtual reality. *Proc. ICMI 2003 (Fifth Int. Conf. on Multimodal Interfaces)*, Vancouver, BC, November 5–7, 2003, 12–19.

Lok, S., Feiner, S., and Ngai, G. Evaluation of visual balance for automated layout. *Proc. IUI 2004 (Int. Conf. on Intelligent User Interfaces)*, Funchal, Madeira, January 13–16, 2004, 101–108.

Blaskó, G. and Feiner, S. Single-handed interaction techniques for multiple pressure-sensitive strips. *ACM CHI 2004 Extended Abstracts*, Vienna, Austria, April 24–29, 2004, 1461–1464.

Allen, P., Feiner, S., Meskell, L, Ross, K., Troccoli, A., Smith, B., Benko, H., Ishak, E., Conlon, J. Digitally modeling, visualizing and preserving archaeological sites [poster]. *Proc. JCDL 2004* (*Joint Conference on Digital Libraries*), Tucson, AZ, June 7–11, 2004, 389.

Olwal, A., and Feiner, S. Unit: Modular development of distributed interaction techniques for highly interactive user interfaces. *Proc. GRAPHITE 2004* (*Int. Conf. on Computer Graphics and Interactive Techniques in Australasia and Southeast Asia*), Singapore, June 15–18, 2004, 131–138.

Allen, P., Feiner, S. Troccoli, A., Benko, H., Ishak, E., and Smith, B. Seeing into the past: Creating a 3D modeling pipeline for archaeological visualization. *Proc. 3DPVT 2004* (*Second Int. Symp. on 3D Data Processing, Visualization, and Transmission*), Thessaloniki, Greece, September 6–9, 2004, 751–758.

Jordan, D., Whalen, G., Bell, B., McKeown, K., and Feiner, S. An evaluation of automatically generated briefings of patient status. *Proc. Medinfo 2004*, San Francisco, CA, September 7–11, 2004, 227–231.

Ishak, E. and Feiner, S. Interacting with hidden content using content-aware free-space transparency. *Proc. UIST 2004* (*ACM Symp. on User Interface Software and Technology*), Santa Fe, NM (*CHI Letters,* vol. 6, no. 2), October 24–27, 2004, 189–192.

Blaskó, G., Beaver, W., Kamvar, M., and Feiner, S. Workplane-orientation–sensing techniques for tablet PCs [poster]. *UIST 2004* (*ACM Symp. on User Interface Software and Technology*), *Conf. Supplement*, Santa Fe, NM, October 24–27, 2004.

Blaskó, G. and Feiner, S. An interaction system for watch computers using tactile guidance and bidirectional segmented strokes. *Proc. ISWC 2004* (*IEEE Int. Symp. on Wearable Computers*), Arlington, VA, October 31–November 3, 2004, 120–123.

Eaddy, M., Blaskó, G., Babcock, J., and Feiner, S. My own private kiosk: Privacy-preserving public displays. *Proc. ISWC 2004* (*IEEE Int. Symp. on Wearable Computers*), Arlington, VA, October 31–November 3, 2004, 132–135.

Benko, H., Ishak, E., and Feiner, S. Collaborative mixed reality visualization of an archaeological excavation. *Proc. ISMAR 2004* (*IEEE and ACM Int. Symp. on Mixed and Augmented Reality*), Arlington, VA, November 2–5, 2004, 132–140.

Olwal, A. and Feiner. S. Interaction techniques using prosodic features of speech and audio localization. *Proc. IUI 2005* (*Int. Conf. on Intelligent User Interfaces*), San Diego, CA, January 9–12, 2005, 284–286.

Benko, H., Ishak, E., and Feiner, S. Cross-dimensional gestural interaction techniques for hybrid immersive environments. *Proc. IEEE Virtual Reality 2005*, Bonn, Germany, March 12–16, 2005, 209–216.

Benko, H. and Feiner, S. Multi-monitor mouse. To appear in *ACM CHI 2005 Extended Abstracts*, Portland, Oregon, April 2–7, 2005.

WORKSHOP PAPERS

Feiner, S., Nagy, S., and van Dam, A. Online documents combining pictures and text. *Proc. Int. Conf. on Research and Trends in Document Preparation Systems*, Lausanne, Switzerland, February 27–28, 1981, 1–4.

Feiner, S. and van Dam, A. Interactive graphical documents. In Najah Naffah, ed., *Office Information Systems*, (Proc. 2nd Int. Workshop on Office Information Systems, INRIA, Saint Maximin, France, October 13–15 1981), North–Holland Publishing Company, Amsterdam, 1982, 119–123.

Feiner, S. An architecture for knowledge-based graphical interfaces. *Proc. ACM/SIGCHI Workshop on Architectures for Intelligent Interfaces: Elements and Prototypes*, Monterey, March 29–April 1, 1988, 129–140.

Feiner, S. Knowledge-based graphical interfaces for presenting technical information. *Proc. SOAR 88: 2nd Ann. Workshop on Space Operations Automation and Robotics* (NASA Conf. Publication 3019), Wright-Patterson AFB, Dayton, OH, July 20–23, 1988, 253–257.

Feiner, S. Automating hypermedia design and layout. *Proc. AAAI–88 Workshop on AI and Hypertext: Issues and Directions*, St. Paul, August 22, 1988, 40–43.

Elhadad, M., Seligmann, D., Feiner, S., and McKeown, K. A common intention description language for interactive multi-media systems. *Proc. IJCAI–89 Workshop on Intelligent Interfaces*, Detroit, MI, August 22, 1989, 46–52.

Feiner, S. and McKeown, K. Coordinating text and graphics in explanation generation. *Proc. DARPA Speech and Natural Language Workshop*, Cape Cod, MA, October 15–18, 1989, 424–433.

Feiner, S. Design issues for knowledge-based multimedia interfaces. *Proc. 1990 AAAI Spring Symp. on Knowledge-Based Human-Computer Communication,* Stanford, CA, March 26–29, 1990, 25–28.

McKeown, K. and Feiner, S. Interactive multimedia explanation for equipment maintenance and repair. *Proc. Third DARPA Speech and Natural Language Workshop*, Hidden Valley, PA, June 24–27, 1990, 42–47.

Feiner, S., Litman, D., McKeown, K., and Passonneau, R. Towards coordinated temporal multimedia presentations. *Proc. AAAI-91 Workshop on Intelligent Multimedia Interfaces*, Anaheim, CA, July 15, 1991, 4–8.

McKeown, K., Millman, D., Donnelly, B., Hoover, J., McClintock, R., Scholten, W., Anastassiou, D., Chang, S., Crosswell, A., Dalal, M., Feiner, S., Kantor, P., Klavans, J., and Schwartz, M. The Janus digital library. *Digital Libraries '94*, College Station, TX, June 19–21, 1994.

MacIntyre, B. and Feiner, S. New multimedia user interfaces: Virtual environments and ubiquitous computing. In *Proc. Schloss Dagstuhl Seminar on Fundamentals and Perspectives on Multimedia Systems*, Schloss Dagstuhl, Germany, July 4–8, 1994.

Pavlik, J. and Feiner, S. Implications of the mobile journalist workstation for print media. *Fall 1998 Virtual Symposium on the Future of Print Media*, Kent State University School of Journalism and Mass Communication, http://www.futureprint.kent.edu/articles/pavlik01.htm.

Julier, S., Rosenblum, L., and Feiner, S. Mobile augmented reality as an example of a complex and demanding human-centered system. *First NSF-EC Workshop on Advanced Research,* Chateau de Bonas, France, June 1–4, 1999.

Höllerer, T., Hallaway, D., Tinna, N., and Feiner, S. Steps toward accommodating variable position tracking accuracy in a mobile augmented reality system. *Working Notes of AIMS 2001 (2nd Int. Workshop on Artificial Intelligence in Mobile Systems)*, Seattle, WA, August 4, 2001, 31–37.

Bell, B. and Feiner, S. Augmented reality for collaborative exploration of unfamiliar environments. *CVRV 2003 (NSF Lake Tahoe Workshop on Collaborative Virtual Reality and Visualization).* Tahoe City, CA, October 26–28, 2003.

Benko, H., Ishak, E., and Feiner, S. Collaborative visualization of an archaeological excavation. *CVRV 2003 (NSF Lake Tahoe Workshop on Collaborative Virtual Reality and Visualization).* Tahoe City, CA, October 26–28, 2003.

Olwal, A. and Feiner. S. Unit: Modular development of distributed interaction techniques for highly interactive user interfaces. *MIXER '04 (Int. Workshop on Exploring the Design and Engineering of Mixed Reality Systems).* Funchal, Portugal, January 13, 2004.

Ishak, E., Benko, H., and Feiner, S. Development and evaluation of mixed reality interaction techniques. *Proc. IEEE*

8

VR 2005 Workshop on New Directions in 3D User Interfaces, Bonn, Germany, March 12, 2005, 53–54.

BOOK CHAPTERS

Feiner, S. Interactive documents. In *Design in the Information Environment*, P. Whitney with C. Kent, eds., Alfred A. Knopf, New York, 1985, 118–132.

Kurlander, D. and Feiner, S. A visual language for browsing, undoing, and redoing graphical interface commands. In Chang, S. (ed.), *Visual Languages and Visual Programming*, Plenum Press, New York, 1990, 257–275.

Feiner, S. An architecture for knowledge-based graphical interfaces. In Sullivan, J. and Tyler, S. (eds.), *Intelligent User Interfaces*, Addison-Wesley, Reading, MA, 1991, 259–279.

Feiner, S. Virtual worlds for visualizing information. In Catarci, T., Costabile, M., and Levialdi, S. (eds.), *Advanced Visual Interfaces (Proc. of the International Workshop AVI '92, Rome, Italy, May 27–29, 1992)*, Singapore: World Scientific, 1992, 3–11.

Kurlander, D. and Feiner, S. A history of editable graphical histories. In Cypher, A. (ed.), *Watch What I Do: Programming by Demonstration.* MIT Press, Cambridge, MA, 1993, 405–413.

Kurlander, D., and Feiner, S. A history-based macro by example system. In A. Cypher (ed.), *Watch What I Do: Programming by Demonstration*, MIT Press, Cambridge, MA, 1993, 323–338. (Reprinted from *Proc. UIST '92 (ACM Symp. on User Interface Software and Technology)*, Monterey, CA, November 15–18, 1992, 99–106.)

Feiner, S. and McKeown, K. Automating the generation of coordinated multimedia explanations. In M. Maybury (ed.), *Intelligent Multimedia Interfaces*, AAAI/MIT Press, Cambridge MA, 1993, 117–138. (An earlier version appeared in *IEEE Computer*, 24(10), October 1991, 33–41.)

Feiner, S., Litman, D., McKeown, K., and Passonneau, R. Towards coordinated temporal multimedia presentations. In M. Maybury (ed.), *Intelligent Multimedia Interfaces*, AAAI/MIT Press, Cambridge, MA, 1993, 139–147. (An earlier version appeared in *Proc. AAAI-91 Workshop on Intelligent Multimedia Interfaces*, Anaheim, CA, July 15, 1991, 4–8.)

Beshers, C. and Feiner, S. Automated design of data visualizations. In L. Rosenblum, R. A. Earnshaw, J. Encarnacao, H. Hagen, A. Kaufman, S. Klimenko, G. Nielson, F. Post, D. Thalmann (eds.), *Scientific Visualization: Advances and Challenges*, Academic Press, London, 1994, 87–102.

Webster, A., Feiner, S., MacIntyre, B., Massie, W., and Krueger, T. Augmented reality applications in architectural construction. In D. Bertol (ed.), *Designing Digital Space: An Architect's Guide to Virtual Reality*, John Wiley & Sons, New York, 1997, 193–200.

Feiner, S. Toward an every-citizen interface. In A. Biermann et al. (eds.), *More Than Screen Deep: Toward Every-Citizen Interfaces to the Nation's Information Infrastructure*, National Academy Press: Washington DC, 1997, 284–296.

Feiner, S. Foreword. In C. Strothotte and T. Strothotte, *Seeing Between the Pixels: Pictures in Human Computer Interaction*, Springer Verlag, Heidelberg, 1998, vii–viii.

Feiner, S. Reflections on "A grid-based approach to automating display layout." In M. Maybury and W. Wahlster (eds.), *Readings in Intelligent User Interfaces*, Morgan Kaufmann, Palo Alto, CA, 1998, 255.

Feiner, S. and McKeown, K. Reflections on "Automating the generation of coordinated multimedia explanations." In M. Maybury and W. Wahlster (eds.), *Readings in Intelligent User Interfaces*, Morgan Kaufmann, Palo Alto, CA, 1998, 98.

Seligmann, D. and Feiner, S. Reflections on "Automated generation of intent-based 3D illustrations." In M. Maybury and W. Wahlster (eds.), *Readings in Intelligent User Interfaces*, Morgan Kaufmann, Palo Alto, CA, 1998, 236.

Feiner, S., MacIntyre, B., and Höllerer, T. Wearing it out: First steps toward mobile augmented reality systems. In Y. Ohta and H. Tamura (eds.), *Mixed Reality: Merging Real and Virtual Worlds*, Ohmsha (Tokyo)–Springer Verlag (Berlin), 1999, 363–377.

Zhou, M. and Feiner, S. IMPROVISE: Automated generation of animated graphics for coordinated multimedia presentations. In Bunt, H. and Beun, R-J. (eds.), *Cooperative Multimodal Communication (Springer Lecture Notes in Artificial Intelligence vol. 2155)*, Springer-Verlag, Berlin, Germany, 2001, 43–63.

Julier, S., Feiner, S. and L. Rosenblum. Mobile augmented reality: A complex human-centered system. In Earnshaw, R., Guedj, R., van Dam, A., and Vince, J. (eds.), *Frontiers of Human-Centred Computing, Online Communities and Virtual Environments,* Springer-Verlag, Berlin, Germany, 2001, 67–79.

Höllerer, T. and Feiner, S. Mobile augmented reality. In Karimi, H. and Hammad, A. (eds.), *Telegeoinformatics: Location-Based Computing and Services*, Taylor and Francis, CRC Press, 2004, 221–260.

Bell, B., Feiner, S., and Höllerer, T. Maintaining visibility constraints for view management in 3D user interfaces. In Stock, O. and Zancanaro, M. (eds.) *Multimodal Intelligent Information Presentation* (*Text, Speech and Language Technology, Vol. 27*), Dordrecht, The Netherlands, Springer, 2005 255-277.

BOOKS

Foley, J., van Dam, A., Feiner, S., and Hughes, J. *Computer Graphics: Principles and Practice, Second Edition,* Addison-Wesley, Reading, MA, 1990.

Foley, J., van Dam, A., Feiner, S., Hughes, J., and Phillips, R. *Introduction to Computer Graphics,* Addison-Wesley, Reading, MA, 1994. (German translation: *Grundlagen der Computergraphik* (trans. T. Merz), Addison-Wesley, Bonn, Germany, 1995; French translation: *Introduction à l'infographie* (trans. G. Deghilage, J. Shao, and J.-L. Schulmann), Addison-Wesley France, Paris, France, 1995; Polish translation: *Wprowadzenie Do Grafiki Komputerowej* (trans. J. Zabrodzki), Wydawnictwa Naukowo-Techniczne, Warsaw, Poland, 1995; Spanish translation: *Introducción a la Graficación por Computador* (trans. E. Peake), Addison-Wesley Iberoamericana, Wilmington, DE, 1996; Chinese simplified language translation, China Machine Press, 2004.)

Singh, G., Feiner, S., and Thalmann, D. (eds.). *Virtual Reality Software & Technology: Proceedings of the VRST '94 Conference,* World Scientific, Singapore, 1994.

Foley, J., van Dam, A., Feiner, S., and Hughes, J. *Computer Graphics: Principles and Practice, Second Edition in C,* Addison-Wesley, Reading, MA, 1995.

EDITORIALS

Feiner, S. and Gibbs, S. Virtual worlds. *ACM Transactions on Information Systems* (special issue on virtual worlds), 11(3), July 1993, 195–196.

Bryson, S. and Feiner, S. Opening remarks. *Proc. IEEE 1993 Symposium on Research Frontiers in Virtual Reality*, San Jose, CA, October 25–26, 1993, iv–v.

Singh, G. and Feiner, S. Introduction to the special issue on virtual reality software and technology. *ACM Transactions on Computer-Human Interaction* (special issue on *VRST '94*), 2(3), September 1995, 177–178.

Rosenblum, L., Bryson, S., and Feiner, S. Virtual reality unbound. *IEEE Computer Graphics & Applications* (special issue on *IEEE VRAIS '95*), 15(5), September 1995, 19–21.

Singh, G., Feiner, S., and Thalmann, D. Introduction to the special section on virtual reality software and technology. *Communications of the ACM*, 39(5), May 1996, 35–36.

Barfield, W., Feiner, S., Furness III, T., and Hirose, M. Editorial notes. *Presence: Teleoperators and Virtual Environments* (special issue on augmented reality), 6(4), August 1997, iii–iv.

Feiner, S. and Thalmann, D. Guest editors' introduction: Virtual reality. *IEEE Computer Graphics & Applications*, 20(6), November/December 2000, 24–25.

Hirose, M., Ohta, Y., and Feiner, S. Guest editors' introduction: Special issue on mixed reality *Presence: Teleoperators and Virtual Environments*, 11(2), April 2002, iii–iv.

POPULAR PRESS

Feiner, S. Augmented reality: A new way of seeing. *Scientific American*, 286(4), April 2002, 34–41.

AMUSEMENTS AND DIVERSIONS

Henry, T., Yeatts, A., Hudson, S., Myers, B., and Feiner. S. A nose gesture interface device: Extending virtual realities. *Presence: Teleoperators and Virtual Environments,* 1(2), Spring 1992, 258–261. (Reprinted from *Proc. UIST '91 (ACM Symp. on User Interface Software and Technology)*, Hilton Head, SC, November 11–13, 1991, 65–68.)

Feiner, S. The next step toward multisensory virtual reality—SHOE: Synthetic Heat Output Environment. (Joke) Panel on New Horizons in Virtual Reality (with M. Bolas, S. Bryson, H. Fuchs, S. Stansfield, and M. Zyda). *IEEE VRAIS '96*, Santa Clara, CA, March 30–April 3, 1996.

PATENTS

Feiner, S. and Beshers, C. Worlds-within-worlds nested display and interaction system and method. US patent applied for on March 25, 1991; issued June 4, 1996. Patent number 5,524,187.

Bell, B. and Feiner, S. System and method for dynamic space management of a display space. PCT patent application serial number PCT/US01/13167, filed April 24, 2001. Entered national phase in the US, October 2002. Filed as US patent application 20040125140, April 10, 2003.

Lok, S. and Feiner, S. Thin client graphical user interface toolkit. PCT patent application serial number PCT/US01/18703, filed June 11, 2001. Entered national phase in the US, December 2002, Filed as US Patent Application 20030182469, June 11, 2001.

Bell, B., Feiner, S., and Höllerer, T. System and method for view management in three dimensional space. PCT patent application serial number PCT/US02/15576, filed May 16, 2002. Entered national phase in the US, November 17, 2003, US Patent Application 20040233171, filed June 14, 2004.

Blaskó, G. and Feiner, S. One-handed control system for electronic devices. US provisional patent application, October 3, 2003.

VIDEOTAPES

Kurlander, D. and Feiner, S. Editable graphical histories. In *SIGGRAPH Video Review,* Issue 63 (CHI '91 Video Proceedings). An extended abstract appears in *Proc. CHI '91: Human Factors in Computing Systems,* New Orleans, LA, April 28–May 2, 1991, 451–452.

Feiner, S. and McKeown, K. COMET: Generating coordinated multimedia explanations. In *SIGGRAPH Video Review,* Issue 65 (CHI '91 Video Proceedings). An extended abstract appears in *Proc. CHI '91: Human Factors in Computing Systems,* New Orleans, LA, April 28–May 2, 1991, 449–450.

Macintyre, B., and Feiner, S. Language-level support for exploratory programming of distributed virtual environments. In *UIST '96 Videotape*, Seattle, WA, November 6–8, 1996.

Macintyre, B., and Feiner, S. A distributed 3D graphics library. In *SIGGRAPH '98 Conference Proceedings Videotape*, Orlando, FL, July 19–24, 1998.

Bell, B. and Feiner, S. Dynamic space management for user interfaces. In *UIST 2000 Conference Videotape*, San Diego, CA, November 5–8, 2000.

Bell, B., Feiner, S., and Höllerer, T. View management for virtual and augmented reality. In *UIST 2001 Conference Videotape*, Orlando, FL, November 11–14, 2001.

Bell, B., Höllerer, T., and Feiner, S. An annotated situation-awareness aid for augmented reality. In *UIST 2002 Conference Videotape*, Paris, France, October 27–30, 2002.

GUEST EDITORSHIPS

Feiner, S. and Gibbs, S. (eds.), *ACM Transactions on Information Systems* (special issue on virtual worlds), 11(3), July 1993.

Singh, G. and Feiner, S. (eds.), *ACM Transactions on Computer-Human Interaction* (special issue on *VRST '94*), 2(3), September 1995.

Rosenblum, L., Bryson, S., and Feiner, S. (eds.), *IEEE Computer Graphics and Applications* (special issue on *VRAIS '95*), 15(5), September 1995.

Singh, G., Feiner, S., and Thalmann, D. (eds.), *Communic. of the ACM* (special section on *VRST '94*), 39(5), May 1996.

Barfield, W., Feiner, S., Furness III, T., and Hirose, M. (eds.), *Presence: Teleoperators and Virtual Environments* (special issue on augmented reality), 6(4), August 1997.

Feiner, S., and Thalmann, D. (eds.), *IEEE Computer Graphics and Applications* (special section on virtual reality), 20(6), November/December 2000.

Hirose, M., Ohta, Y., and Feiner, S. (eds.), *Presence: Teleoperators and Virtual Environments* (special issue on mixed reality), 11(2), April 2002.

Feiner, S. and Olivier, P. (eds.), *Virtual Reality* (special issue on language, speech and gesture for VR), 2005.

WORKSHOPS AND SYMPOSIA ORGANIZED

AI and Hypertext: Issues and Directions. Workshop co-organizer (with M. Bernstein and K.E. Drexler). *AAAI-88*, St. Paul, MN, August 21–26, 1988.

A New Generation of Intelligent Interfaces. Workshop co-organizer (with Y. Arens, J. Hollan, and R. Neches). *IJCAI–89,* Detroit, MI, August 20–25, 1989.

Intelligent Multimedia Interfaces. Workshop co-organizer (with M. Maybury, A. Kobsa, B. Webber). *AAAI-91*, Anaheim, CA, July 14–19, 1991.

IEEE 1993 Symposium on Research Frontiers in Virtual Reality. Symposium co-organizer (with S. Bryson). San Jose, CA, October 25–26, 1993.

AAAI Spring '94 Symposium on Intelligent Multi-Media Multi-Modal Systems. Symposium co-organizer (with P. Johnson, J. Marks, M. Maybury, and J. Moore). Stanford, CA, March 21–23, 1994.

Combining AI and Graphics for the Interface of the Future. Workshop co-organizer (with T. Rist, A. Butz, I. Herman, and A. Krueger) . *ECAI '98*, Brighton, UK, August 24, 1998.

TUTORIALS

First steps toward intelligent design systems. *Computer Graphics for Designers and Artists* (with I. Kerlow et al.), *ACM SIGGRAPH '85*, San Francisco, CA, July 22–26, 1985.

Realistic computer graphics. *Introduction to Computer Graphics* (with B. Herzog, C. Weger, and J. Foley), *ACM SIGGRAPH '86*, Dallas, TX, August 18–22, 1986.

Introduction to realistic computer graphics. *Electro 87*, New York, NY, April 7–9, 1987.

Graphical user interfaces in the 1990s. *IEEE 37th Satellite Videoconference—3D Computer Graphics: Construction to Interaction* (with B. Naylor and P. Hanrahan), San Diego, CA, October 3, 1990.

Automating the design of effective graphics for intelligent user interfaces (with J. Mackinlay and J. Marks). *ACM CHI '92*, Monterey, CA, May 3–7, 1992.

Advanced business visualization (with S. Cohen, I. Jarett, and C. Machover). *ACM SIGGRAPH '92*, Chicago, IL, July 26–31, 1992.

Automating the design of effective graphics (with J. Mackinlay and J. Marks). *1992 IEEE Workshop on Visual Languages*, Seattle, WA, September 15–18, 1992.

Automating the design of effective graphics (with J. Mackinlay and J. Marks). *Visualization '92*, Boston, MA, October 19–23, 1992.

Information visualization with interactive 3D representations (with I. Jarett and G. Robertson). *INTERCHI '93*, Amsterdam, Netherlands, April 24–29, 1993.

Automating the design of effective graphics (with J. Mackinlay and J. Marks). *AAAI '93*, Washington, DC, July 11–16, 1993.

Virtual reality for visualization (with S. Bryson). *Visualization '93*, San Jose, CA, October 24–29, 1993.

Virtual reality and its applications (with S. Bryson). *Virtual Reality Applications '94*, Leeds, UK, June 7–9, 1994.

Developing advanced virtual reality applications (with S. Bryson, R. Pausch, D. Proffitt, and H. Sowizral). *ACM SIGGRAPH '94,* Orlando, FL, July 24–29, 1994.

Introduction to virtual reality design (with S. Bryson). *VRST '94,* Singapore, August 23–26, 1994.

Virtual reality for visualization (with S. Bryson). *IEEE Visualization '94,* Tysons Corner, VA, October 17–21, 1994.

Virtual reality for visualization (with S. Bryson). *IEEE Visualization '95,* Atlanta, GA, October 30–November 3, 1995.

Augmented reality. Computer Science Postgraduate Course on Virtual Reality. Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, May 29–31, 1996.

Augmented reality for visualization. *Eighth International School for Computer Science Researchers,* Lipari, Italy, July 1–12, 1996.

On Beyond GUI: The future of user interfaces. Columbia University Center for New Media Technology, New York, NY, June 16, 1998.

Augmented reality. *MUM 2002 (First Int. Conf. on Mobile and Ubiquitous Multimedia),* Oulu, Finland, December 11–13, 2002.

PANELS

Generating explanatory pictures. Knowledge-based computer graphics: Intersections of AI and computer graphics. *ACM SIGGRAPH '86*, Dallas, TX, August 18–22, 1986.

Designing effective pictures: Is photographic realism the only answer? Panel co-chair (with J. Mackinlay). Panelists: J. Blinn, D. Greenberg, M. Hagen. *ACM SIGGRAPH '88*, Atlanta, GA, August 1–5, 1988. (Published as Feiner, S., Mackinlay, J., Blinn, J., Greenberg, D., and Hagen, M. Designing effective pictures: Is photographic realism the only answer? In Phillips, R. (ed.), *SIGGRAPH '88 Panels Proceedings*, Atlanta, GA, August 1–5, 1988.)

Toward knowledge-based generation of hypermedia. Expert systems and hypertext, *ACM Hypertext '89*, Pittsburgh, PA, November 5–8, 1989. (Published as Bieber, M., Feiner, S., Frisse, M., Hayes, P., Peper, G., and Scacchi, W., Expert Systems and Hypertext, *Proc. ACM Hypertext '89*, Pittsburgh, PA, November 5–8, 1989, 391–392.)

Automating user interface design. The future of software and technology for user interfaces, *ACM UIST '89*, Williamsburg, VA, November 13–15, 1989.

Interaction techniques and metaphors for multidimensional virtual worlds. Interaction issues in visualization: Requirements, techniques, and devices. *Visualization '90*, San Francisco, CA, October 23–26, 1990. (Published as Senay, H., Feiner, S., Fisher, S., Grinstein, G., Mackinlay, J., and Treinish, L. Interaction issues in visualization: Requirements, techniques, and devices. *Proc. Visualization '90*, San Francisco, CA, October 23–26, 1990, 393–400.)

Media coordination in the COMET multimedia explanation testbed. Multi-media in AI: Challenges and opportunities (with A. Kobsa, Y. Arens). *CAIA-91 (7th IEEE Conf. on AI Applications)*, Miami, FL, February 24–28, 1991.

Computer graphics: More unsolved problems. Panel co-chair (with F. Crow). Panelists: A. Barr, F.P. Brooks, Jr., S. Card, J. Clark, A.R. Forrest, P. Hanrahan, A. van Dam. *ACM SIGGRAPH '91*, Las Vegas, NV, July 28–August 2, 1991. (http://www.siggraph.org/publications/panels/siggraph91/p04.html)

The future of visual languages (P. Mussio, chair). *1992 IEEE Workshop on Visual Languages*, Seattle, WA, September 15–18, 1992.

Ubiquitous computing and augmented reality (with B. Buxton, C. Schmandt, R. Gold, M. Weiser, P. Wellner). *ACM SIGGRAPH '93*, Anaheim, CA, August 1–6, 1993. (Published as Gold, R., Buxton, B., Feiner, S., Schmandt, C., Wellner, P., and Weiser, M. Ubiquitous computing and augmented reality. *Proc. SIGGRAPH '93*, Anaheim, CA, August 1–6, 1993, 393–394.)

Research frontiers in virtual reality. Panel co-chair (with S. Bryson). Panelists: F.P. Brooks, Jr., P. Hubbard, R. Pausch, A. van Dam. *ACM SIGGRAPH '94*, Orlando, FL, July 24–29, 1994. (Published as Bryson, S., Feiner, S., Brooks, F., Hubbard, P., Pausch, R., and van Dam, A. Research frontiers in virtual reality. *Proc. SIGGRAPH '94*, Orlando, FL, July 24–29, 1994, 473–474.)

Augmented reality (with R. Azuma, G. Bishop, M. Dailey, S. Ellis, and U. Neumann). *Workshop on Wearable Computer Systems*, Renton, WA, August 19–21, 1996.

Agents and system intelligence (Chair: A. Biermann, with C. Knoblock, M. Maybury, J. Moore, K. Sycara, and K. Wittenburg). *Computer Science and Telecommunications Board Workshop: Toward an Every-Citizen Interface to the National Information Infrastructure*, Washington, DC, August 22–23, 1996.

Keynote panel: Visualization of information (with B. Spence, A. Gagalowitz, B. Shneiderman, and M. Gross). *CODATA Euro-American Workshop on Visualization of Information and Data*. Ministère de l'Education Nationale de l'Enseignement Supérieur de la Recherche, Paris, France, June 24–25, 1997.

The future of UIST (Chair: R. Jacob, with J. Foley, J. Mackinlay, and D. Olsen). *ACM UIST '97*, Banff, Alberta, October 14–17, 1997. (Published as Jacob, R., Feiner, S., Foley, J., Mackinlay, J., and Olsen, D., UIST '007: Where will we be ten years from now? *Proc. UIST '97*, Banff, Alberta, October 14–17, 1997, 115–118.)

The sorcerer's apprentice: Invoking ubiquitous computing for computer graphics (Chair: W. Paley, with W. Buxton, H. Ishii, J. Mountford, S. Shafer, and M. Weiser). *ACM SIGGRAPH '98*, Orlando, FL, July 19–24, 1998. (Published as Paley, W., Buxton, Feiner, S., W., Ishii, H., Mountford, J., Shafer, S. and Weiser, M., The Sorcerer's Apprentice: Ubiquitous Computing and Graphics, *SIGGRAPH 98 Conference Abstracts and Applications*, Orlando, FL, July 19–24, 1998, 206–208.)

Computer vision in 3D interactivity (Chair: M. Holler, with I. Carlbom, G. Robertson, and D. Terzopoulos). *ACM SIGGRAPH '98*, Orlando, FL, July 19–24, 1998. (Published as Holler, M., Carlbom, I., Feiner, S., Robertson, G., Terzopoulos, D., Computer vision in 3D interactivity, *SIGGRAPH 98 Conference Abstracts and Applications*, Orlando, FL, July 19–24, 1998, 220–222.)

Mixed reality: Where real and virtual worlds meet (Chair: S. Feiner, with H. Fuchs, T. Kanade, G. Klinker, P. Milgram, and H. Tamura). *ACM SIGGRAPH '99*, Los Angeles, CA, August 8–13, 1999. (Published as Feiner, S., Fuchs, H., Kanade, T., Klinker, G., Milgram, P. and Tamura, H. Mixed reality: Where real and virtual worlds meet, *SIGGRAPH 99 Conference Abstracts and Applications*, Orlando, FL., August 8–13, 1999, 156–158.)

Research in multimodal interfaces: The future. (Chair: O. Stock, with M. Maybury, S. Shieber, and K. Wittenburg), *AVI 2002 (Advanced Visual Interfaces)*, Trento, Italy, May 22–24, 2002.

Unsolved problems in mobile computer graphics and interaction (Chair: M. Ollila, with K. Bradshaw, K. Pulli, and S. Bjork), *ACM SIGGRAPH 2002*, San Antonio, TX, July 21–26, 2002.

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Directions and frameworks for effective telepresence. (Chair: G. Pingali, with S.K. Ganapathy, J. Lanier, G. Levin, and D. White), *ETP 2004* (*ACM Workshop on Effective Telepresence*), New York, NY, October 15, 2004. (Published as Feiner, S., Ganapathy, S., Lanier, J., Levin, G., White, D., and Pingali, G. Panel: Directions and frameworks for effective telepresence. *Proc. ETP 2004* (*ACM SIGMM 2004 Workshop on Effective Telepresence*), New York, NY, October 15, 2004, 69–72.)

INVITED AND REFEREED DEMONSTRATIONS

Feiner, S. and MacIntyre, B. Augmented reality. *ONR 50th Anniversary Symposium*, National Academy of Sciences, Washington, DC, May 22, 1996.

Webster, A., Feiner, S., and MacIntyre, B. Augmented reality for spaceframe construction. *ASCE Third Congress on Computing in Civil Engineering*, Anaheim, CA, June 17–19, 1996.

MacIntyre, B. and Feiner, S. Language-level support for exploratory programming of distributed virtual environments. *UIST '96 (ACM Symp. on User Interface Software and Technology)*, Seattle, WA, November 6–8, 1996

Feiner, S., Webster, A., and MacIntyre, B. ARC: Augmented Reality for Construction. *ACM '97*, San Jose, CA, March 1–4, 1997.

Feiner, S. and Höllerer, T. Mobile Augmented Reality Systems. *Defense Science and Technology Seminar on Emerging Technologies: Augmented Reality for the Mobile Warfighter.* (Sponsored by Deputy Under Secretary of Defense for Science and Technology; Chief of Naval Research, ONR; Director, DARPA.) Arlington, VA, April 9, 1999.

Feiner, S., Höllerer, T., Gagas, E., and Terauchi, T. User Interfaces for Mobile Augmented Reality Systems. *Intel Computing Continuum Conference 2000*, San Francisco, CA, March 15–17, 2000.

Feiner, S., Höllerer, T., Gagas, E., Hallaway, D., Güven, Baillot, Y., Julier, S., Brown, D., and Lanzagorta, M. Distributed 3D Graphics on Wearable Computers. *ISWC 2000 (IEEE Int. Symp on Wearable Computers)*, Atlanta, GA, October 16–17, 2000.

Feiner, S., Bell, B., Gagas, E., Güven, S., Hallaway, D., Höllerer, T., Lok, S., Olwal, A., Tinna, N., Yamamoto, R., Julier, S., Baillot, Y., Brown, D., Lanzagorta, M., Butz, A., Foxlin, E., Harrington, M., Naimark, L., and Wormell, D. Mobile Augmented Reality Systems. *ACM SIGGRAPH 2001*, Los Angeles, CA, August 12–17, 2001. (Published as Feiner, S., Bell, B., Gagas, E., Güven, S., Hallaway, D., Höllerer, T., Lok, S., Tinna, N., Yamamoto, R., Julier, S., Baillot, Y., Brown, D., Lanzagorta, M., Butz, A., Foxlin, E., Harrington, M., Naimark, L., and Wormell, D. Mobile Augmented Reality Systems, *SIGGRAPH 2001 Conference Abstracts and Applications,* Los Angeles, CA, August 12–17, 2001, 129.)

Feiner, S., Bell, B., Güven, S., Hallaway, D., Höllerer, T., Lok, S., Olwal, A., Tang, J., Tinna, N., and Yamamoto, R. Mobile Augmented Reality Systems. *IEEE and ACM ISAR 2001 (Int. Symp. on Augmented Reality)*, New York, NY, October 29–30, 2001.

Feiner, S., Bell, B., Benko, H., Blaskó, G., Güven, S., Hallaway, D., Höllerer, T., and Lok, S. Mobile Augmented Reality Systems. *Living with the Genie: Governing Scientific and Technological Transformation in the 21st Century*, New York, NY, March 5–7, 2002.

Feiner, S., Benko, H., and Olwal, A. Mobile Augmented Reality Systems. *Naval–Industry R&D Partnership Conference 2002*, Washington, DC, August 13–14, 2002.

Feiner, S., and Bell, B., Güven, S., Hallaway, D., and Sandor, C., Mobile Augmented Reality Systems. Office of Naval Research Afloat Lab, *17th Annual New York City Fleet Week*, New York, NY, May 26–28, 2004.

Benko, H., Ishak, E., and Feiner, S. VITA: Visual Interaction Tool for Archaeology. *ETP 2004* (*ACM Workshop on Effective Telepresence*), New York, NY, October 15, 2004. (Published as Benko, H., Ishak, E., and Feiner, S. VITA: Visual Interaction Tool for Archaeology (Demo). *Proc. ETP 2004* (*ACM SIGMM 2004 Workshop on Effective Telepresence*), New York, NY, October 15, 2004, 48–49.)

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Sandor, C., Bell, B., Olwal, A., Temiyabutr, S., and Feiner, S. Visual End User Configuration of Hybrid User Interfaces. *ETP 2004* (*ACM Workshop on Effective Telepresence*), New York, NY, October 15, 2004. (Published as Sandor, C., Bell, B., Olwal, A., Temiyabutr, S., and Feiner, S. Visual End User Configuration of Hybrid User Interfaces. *Proc. ETP 2004* (*ACM SIGMM 2004 Workshop on Effective Telepresence*), New York, NY, October 15, 2004, 67–68.)

Benko, H., Ishak, E., and Feiner, S. Collaborative Mixed Reality Visualization of an Archaeological Excavation. *ISMAR 2004* (*IEEE and ACM Int. Symp. on Mixed and Augmented Reality*), Arlington, VA, November 2–5, 2004.

Sandor, C., Bell, B., Olwal, A., Temiyabutr, S., and Feiner, S. Visual End User Configuration of Hybrid User Interfaces. *ISMAR 2004* (*IEEE and ACM Int. Symp. on Mixed and Augmented Reality*), Arlington, VA, November 2–5, 2004.

INVITED TALKS

Interactive graphical documents. *The New Graphics*, MIT Visible Language Workshop, Cambridge, MA, July 31, 1981.

Research in graphical documents at Brown University. INRIA, Le Chesnay, France, October 16, 1981.

Interactive technical documentation. *1st Conf./Workshop on Integrating CAD/CAM and Electronic Publishing*, Graphic Communications Association, Boston, MA, April 19–20, 1982.

Designing an "electronic book." *Applied Semiotics for Design '82*, Rhode Island School of Design, Providence, RI, July 11–16, 1982.

Interactive documents and automated authoring. *2nd Conf. on Design and the Information Environment*, Minneapolis College of Art and Design, Minneapolis, MN, October 7–9, 1982.

Research in integrated text and graphics at Brown University. *IBM Engineering/Scientific Study Conference*, Poughkeepsie, NY, November 8–10, 1982.

DIAL: A diagrammatic animation language. ACM SIGGRAPH/New England and Massachusetts Chapter of NCGA, MITRE Corp., MA, December 8, 1982.

Automating the design of graphical presentations. Bell Laboratories, Holmdel, NJ, May 17, 1983.

Computers and designers. *Applied Semiotics for Design '83*, Rhode Island School of Design, Providence, RI, June 7, 1983.

Automating the design of graphical presentations. Naval Research Laboratory, Washington, DC, June 24, 1983.

Designing interactive books. *The New Graphics*, MIT Visible Language Workshop, Cambridge, MA, July 20, 1983.

Research in computer graphics at Brown University. Atari Research Center, Cambridge, MA, March 13, 1984.

Automating the creation of explanatory pictures. MIT Media Laboratory, Cambridge, MA, April 24, 1984.

Computers + books = ? *CADE 84: Computer Art and Design Education*, Assoc. for Computer Art and Design Education, St. Paul, MN, July 18–21, 1984.

Automating the creation of explanatory pictures. University of Toronto, Department of Computer Science, Toronto, Canada, October 23, 1984.

Designing for the electronic book: Two approaches. *Japan–USA Joint Symp. on Computers, Information and Design*, Osaka, Japan, October 31–November 2, 1984.

Automating the creation of pictorial explanations. University of Toronto, Department of Computer Science, Toronto, Canada, March 26, 1985.

Automating the creation of pictorial explanations. Columbia University, Department of Computer Science, New York, NY, April 1, 1985.

Automating the creation of pictorial explanations. Carnegie–Mellon University, Department of Computer Science, Pittsburgh, PA, April 9, 1985.

Automating the creation of pictorial explanations. University of Pennsylvania, Department of Computer and Information Science, Philadelphia, PA, April 15, 1985.

Automating the creation of pictorial explanations. Xerox PARC, Computer Systems Laboratory, Palo Alto, CA, May 6, 1985.

A graphical interface design system. *1987 Computer Graphics Symposium*, Hewlett-Packard Research Labs, Palo Alto, CA, June 9–10, 1987.

A graphical interface design system. Xerox PARC, Intelligent Systems Laboratory, Palo Alto, CA, June 11, 1987.

A graphical interface design system. Digital Equipment Corporation, Systems Research Center, Palo Alto, CA, June 12, 1987.

A graphical interface design system. University of Southern California, Information Sciences Institute, Marina del Rey, CA, August 3, 1987.

A graphical interface design system. Bell Laboratories, Murray Hill, NJ, August 25, 1987.

Automating the creation of graphical interfaces. Bellcore, Morristown, NJ, January 29, 1988.

Editing, presenting, and exploring large graphical hypertexts. Medical Informatics Lecture Series, Columbia Presbyterian Medical Center, New York, NY, March 17, 1988.

Automating the creation of graphical interfaces. IBM T.J. Watson Research Center, Yorktown Heights, NY, March 18, 1988.

Knowledge-based graphical interface design. *1988 Computer Graphics Symposium*, Hewlett-Packard, Fort Collins, CO, June 21–22, 1988.

Knowledge-based graphical interface design. Air Force Human Resources Laboratory, Wright-Patterson AFB, OH, July 21, 1988.

Knowledge-based graphical interface design. Schlumberger-Doll Research, Ridgefield, CT, September 16, 1988.

Hypertext, hypermedia, and beyond. Columbia University Seminar on Computers, Man, and Society, New York, NY, September 22, 1988.

Designing large hypermedia documents with IGD. *Hypertext Design Workshop*, Sunapee, NH, October 16–19, 1988.

Knowledge-based graphical interface design. Philips Research, Briarcliff Manor, NY, October 28, 1988.

Knowledge-based graphical interface design. The George Washington Univ. EE & CS Lecture Series, Washington, DC, November 22, 1988.

Graphical user interfaces. *New England Consortium for Undergraduate Science Education Workshop on Computer Graphics.* Wellesley College, Wellesley, MA, January 20–21, 1989.

Knowledge-based graphics. *1989 Computer Graphics Symposium*, Hewlett-Packard, Ft. Collins, CO, June 14–15, 1989.

Knowledge-based graphics. Grumman Data Systems, Woodbury, NY, September 29, 1989.

Hypertext, hypermedia, and beyond. *Technology Studies Seminar*, Gannett Center for Media Studies, Columbia University, New York, NY, October 23–27, 1989.

Knowledge-based graphical interface design. *Programming the Future Colloquium Series,* University of Maryland, College Park, MD, December 4, 1989.

Research directions in user interface design. *New England Regional Computer Program Conference on Computer Graphics,* US Coast Guard Academy, New London, CT, December 8, 1989.

Knowledge-based graphics. *ACM/SIGGRAPH NY Chapter,* January 26, 1990.

Knowledge-based graphical explanations. *Graphik und KI (Workshop on Graphics and AI),* sponsored by Gesellschaft für Informatik e.V. and Gesellschaft für Mathematik und Datenverarbeitung mbH, Königswinter, Federal Republic of Germany, April 3–4, 1990.

Research in knowledge-based graphics. Gesellschaft für Mathematik und Datenverarbeitung mbH (German National Research Institute for Computer Science), Sankt Augustin, Federal Republic of Germany, April 4, 1990.

Knowledge-based graphical explanations. Deutsches Forschungszentrum für Künstliche Intelligenz (German Research Center for Artificial Intelligence), Saarbrücken, Federal Republic of Germany, April 5, 1990.

Knowledge-based graphics. Harvard University Center for Research in Computing Technology Colloquium, Cambridge, MA, May 9, 1990.

Generating coordinated multimedia explanations. *Workshop on Task Communication through Natural Language and Graphics,* University of Pennsylvania, Philadelphia, PA, May 29–30, 1990.

Knowledge-based multimedia user interfaces and virtual worlds. 1990 Ann. Symp. of the Metropolitan Chapter of the Human Factors Soc., New York, NY, November 8, 1990.

Knowledge-based graphics and virtual worlds. EE&CS Lecture Series, United States Military Academy, West Point, NY, December 6, 1990.

Knowledge-based animation and virtual worlds. Future Directions in Computer Animation (with L. Herr and K. Perlin). *The 7th Annual Computer Graphics Show NY 1991,* New York, NY, January 15–17, 1991.

Why waste perfectly good space on libraries? (with D. Duchamp and G. Maguire). *CISE Research Seminar Series,* National Science Foundation, Washington, DC, February 7, 1991.

User interface software for portable personal computers. *Symposium on Wireless Access to Distributed Computing,* Center for Telecommunications Research, Columbia University, New York, NY, February 15, 1991.

Visualizing *n*-dimensional virtual worlds. *ACM/SIGGRAPH NY Chapter,* New York, NY, February 21, 1991.

AI and graphics. Graphics Lunch Series, Department of Computer Science, Princeton University, Princeton, NJ, March 12, 1991.

Knowledge-based graphics and virtual worlds. Bellcore, Morristown, NJ, March 20, 1991.

Knowledge-based graphics and virtual worlds. Department of Computer Science Colloquium, Rensselaer Polytechnic Institute, Troy, NY, April 4, 1991.

Knowledge-based graphics and virtual worlds. New York Academy of Sciences, New York, NY, May 14, 1991.

If electronic books are the answer, then what's the *next* question? Dept. of Computer Science, University of Washington, Seattle, WA, June 3, 1991.

Knowledge-based interfaces and virtual worlds. Citicorp Corporate Technology, New York, NY, June 20, 1991.

Virtual worlds for visualizing data. Digital Equipment Corporation, Systems Research Center, Palo Alto, CA, June 21, 1991.

Virtual worlds for visualizing data. GTE Laboratories, Waltham, MA, July 10, 1991.

Generating multimedia explanations. US Air Force Armstrong Lab Workshop on Automatic Generation of Technical Manuals, Palo Alto, CA, September 9–12, 1991.

Knowledge-based user interfaces and virtual worlds. IEEE Computer Society Long Island Chapter, Old Westbury, NY, September 19, 1991.

Virtual worlds for visualizing data. Bell Laboratories, Murray Hill, NJ, January 17, 1992.

Knowledge-based user interfaces and virtual worlds. Affiliates Seminar, Center for Research on Information Systems, Stern School of Business, New York University, New York, NY, January 23, 1992.

Virtual worlds research at Columbia University. *Virtual Reality: New Directions in Human/Computer Interaction '92,* New York, NY, February 4–5, 1992. (Appears as Feiner, S. Virtual worlds research at Columbia University, *Proc. of Virtual Reality Systems '93, including Virtual Reality: New Directions in Human Computer Interaction '93,* March 15–17, 1993 and February 4–5, 1992, 322–326.)

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Virtual worlds for visualizing information. Matsushita Information Technology Laboratory, Princeton, NJ, February 7, 1992.

Virtual worlds for visualizing information. *1992 Long Island Conference on AI and Graphics,* Old Westbury, NY, March 21, 1992.

Virtual worlds for visualizing information. Media Lab, MIT, Cambridge, MA, April 2, 1992.

Virtual worlds for visualizing information. Graphics Day, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA, April 8, 1992.

Knowledge-based graphics and virtual worlds. Tecnopolis CSATA Novus Ortus, Bari, Italy, May 25, 1992.

Virtual worlds for visualizing information. *AVI '92 (International Workshop on Advanced Visual Interfaces),* Rome, Italy, May 27–29, 1992.

Virtual worlds for visualizing information. Information Systems Laboratory, GE Research and Development Center, Schenectady, NY, June 30, 1992.

Knowledge-based graphics and virtual worlds. *GWAI '92 (German Conference on Artificial Intelligence),* Bonn, Germany, August 31–September 3, 1992.

Virtual worlds for visualizing information. Max-Planck-Institut für Informatik, Saarbrücken, Germany, September 7, 1992.

Keynote address: See what I mean: Intention and visual language. *1992 IEEE Workshop on Visual Languages,* Seattle, WA, September 15–18, 1992.

Virtual worlds for visualizing business data. Merrill Lynch, New York, NY, October 27, 1992.

Virtual worlds for visualizing information. *Supercomputing '92,* Minneapolis, MN, November 16–20, 1992.

Virtual worlds for visualizing information. Dept. of Computer Science, NYU Courant Institute, New York, NY, December 4, 1992.

Virtual worlds for visualizing information. *Columbia University Seminar on Computers, Man, and Society,* New York, NY, December 17, 1992.

Virtual worlds for visualizing information. *5th MultiG Workshop*, Royal Institute of Technology, Stockholm, Sweden, December 18, 1992. (Delivered remotely using Internet video and audio teleconferencing tools.)

Knowledge-based graphics and virtual worlds. Navy Center for Applied Research in Artificial Intelligence, Naval Research Laboratory, Washington, DC, February 8, 1993.

Virtual worlds for visualizing information. *2010: Outlook to the Future,* Commercial Real Estate Women and Urban Land Institute, New York, NY, March 4, 1993.

Virtual worlds and augmented reality at Columbia University. *Virtual Reality Systems '93,* New York, NY, March 15–17, 1993. (Appears as Feiner, S., Virtual worlds research at Columbia University, *Virtual Reality Systems: Applications, Research & Development,* 1(1), March 1993, 63–66.)

Virtual worlds for visualizing information. Computer Science Department Colloquium, Yale University, New Haven, CT, March 25, 1993.

Knowledge-based design of 3D graphics and virtual worlds. *Graphics Interface '93,* Toronto, Canada, May 17–21, 1993. (Abstract appears as Feiner, S., Knowledge-based design of 3D graphics and virtual worlds, *Proc. Graphics Interface '93*, Toronto, Canada, May 17–21, 1993, 51–52.)

Knowledge-based graphics and virtual worlds. *ONR Workshop on Virtual Environments and Virtual Reality,* Chapel Hill, NC, May 27–29, 1993.

Knowledge-based augmented reality. *Navy Scientific Visualization and Virtual Reality Seminar,* Carderock Division, Naval Surface Warfare Center, Bethesda, MD, June 22, 1993.

Knowledge-based augmented reality. *NASA/Sarnoff/SRI Next Generation VR Research Workshop,* David Sarnoff Research Center, Princeton, NJ, June 29, 1993.

Knowledge-based graphics and virtual worlds. Fraunhofer Institute for Computer Graphics, Darmstadt, Germany, July 5, 1993.

Automated design of data visualizations, *ONR Workshop on Data Visualization,* Darmstadt, Germany, July 6–8, 1993.

Virtual worlds for visualizing information. Department of Computer Science, Purdue University, West Lafayette, IN, August 10, 1993.

Knowledge-based graphics and virtual worlds. *IJCAI '93 (13th Int. Joint Conf. on AI),* Chambéry, France, August 29–September 3, 1993.

Virtual worlds for visualizing information. *Gartner Group Symposium '93*, Lake Buena Vista, FL, October 4–8, 1993.

Knowledge-based multimedia and virtual worlds, *New Horizons in Physics Lecture Series: Multimedia,* SUNY, New Paltz, NY, October 14, 1993.

Virtual worlds for visualizing information. Department of Computer Science Industrial Partners Program Day, Brown University, Providence, RI, October 15, 1993.

Virtual worlds and augmented reality at Columbia University. *Virtual Reality Systems Fall '93,* New York, NY, October 18–21, 1993.

Virtual worlds for visualizing information. Apple Computer, Inc., Cupertino, CA, October 22, 1993.

Augmented reality. *5th EFDPMA Washington DC Virtual Reality Conference,* Education Foundation of the Data Processing Management Association, Washington, DC, November 1–2, 1993.

Virtual worlds for visualizing information. Columbia University Center for Medical Informatics Seminar, New York, NY, February 10, 1994.

Virtual worlds for visualizing information. Institut für Informatik, Freie Universität, Berlin, Germany, March 14, 1994.

Virtual worlds for visualizing information. Fraunhofer Institute for Computer Graphics, Rostock, Germany, March 15, 1994.

Virtual worlds for visualizing information. Department of Computer Science, Otto-von-Guericke Universität Magdeburg, Magdeburg, Germany, March 16, 1994.

Keynote address: Knowledge-based graphics and virtual worlds. *Simulation & Integration '94*, Magdeburg, Germany, March 17–18, 1994.

Virtual worlds for visualizing information. Institute for the Learning Sciences, Northwestern University, Evanston, IL, April 15, 1994.

User interfaces for the 21st century: Knowledge-based graphics and virtual worlds. *Educating America for the 21st Century: Driving Forces,* Institute for Learning Technologies, Columbia University, April 21, 1994.

Discussant, Interacting in 3-D, *CHI '94*, Boston, MA, April 24–28, 1994.

Redefining the user interface: Augmented reality. *Universal Personal Communications: Achieving Global Wireless Connectivity*, Columbia University, New York, NY, May 13, 1994.

Keynote address: Knowledge-based virtual worlds and augmented reality. *Virtual Reality Applications '94*, Leeds, UK, June 7–9, 1994.

Setting up a virtual reality system. *New York Virtual Reality Expo '94*, New York, NY, November 29–December 2, 1994.

Augmented reality for task training and assistance. *ONR Workshop on Virtual Environments.* Arlington, VA, March 21–22, 1995.

Augmented reality: Seeing on top of the world. IBM Almaden Research Center, CA, April 13, 1995.

Augmented reality: Seeing on top of the world. Polytechnic University, New York, NY, April 24, 1995.

Discussant, Innovative Interaction, *CHI '95*, Denver, CO, May 7–11, 1995.

Augmented reality. *NRL Workshop on Virtual Reality,* Naval Research Lab, Washington, DC, May 23–24, 1995.

Virtual worlds for visualizing information. *Colloquium on High Performance Scientific Computation 1995,* Laboratorio Nacional de Computacao Cientifica, Rio de Janeiro, Brazil, July 31–August 4, 1995.

Virtual worlds for visualizing information. IBM T.J. Watson Research Center, Hawthorne, NY, August 24, 1995.

Augmented reality. *International Symposium in Electronics and Computing Technology 1995*, Instituto Tecnologico de La Laguna, Torreon, Coahuila, Mexico, October 19–21, 1995.

Seeing on top of the world. Media Lab Colloquium Series, Media Lab, MIT, Cambridge, MA, February 7, 1996.

Seeing on top of the world. Digital Equipment Corporation, Systems Research Center, Palo Alto, CA, March 29, 1996.

Adding insight through animation in augmented reality. *Computer Animation '96,* Geneva, Switzerland, June 3–4, 1996. (Abstract appears as Feiner, S. Adding insight through animation in augmented reality, *Proc. Computer Animation '96,* June 3–4, 1996, Geneva, Switzerland, IEEE Comp. Soc. Press, 14–15.)

Seeing on top of the world. Microsoft Research, Redmond, WA, November 5, 1996.

Seeing on top of the world. *Department of Computer Science Seminar Series*, University of British Columbia, Vancouver, Canada, January 30, 1997.

3D user interfaces for interacting with information. AT&T Laboratories, Murray Hill, NJ, February 19, 1997.

3D User Interfaces for visualizing information. *P1000 Information Visualization Program Meeting*, Office of Research and Development, Directorate of Science and Technology, Gettysburg, PA, April 30–May 1, 1997.

Seeing on top of the world. Department of Computer Science Lecture Series, University of Maryland Baltimore County, Baltimore, MD, May 5, 1997.

Knowledge-based visualization of computer networks. *CODATA Euro-American Workshop on Visualization of Information and Data*. Ministère de l'Education Nationale de l'Enseignement Supérieur de la Recherche, Paris, France, June 24–25, 1997.

Knowledge-based 3D graphics. *IJCAI '97 Workshop on Intelligent Multimodal Systems*, Nagoya, Japan, August 23, 1997.

Seeing on top of the world. Mixed Reality Systems Laboratory Inc. Yokohama, Japan, August 26, 1997.

Seeing on top of the world: Research in augmented reality. *Euro-VR '97*, Amsterdam, The Netherlands, November 10–11, 1997.

Trick or tree: The role of hierarchy in the user interface. Keynote talk: *Graphical User Interfaces for Hierarchies*, Human-Computer Interaction Laboratory (Also, Inst. for Systems Research, University of Maryland and Harvard University, Joint Lecture Series), University of Maryland, College Park, MD, December 4–5, 1997.

Seeing on top of the world. *Real Time Computer Graphics for Virtual Environments*, UK Engineering and Physical Sciences Research Council, London, England, December 18, 1997.

Automated generation of graphics for coordinated multimedia presentations. *CMC '98 (Second Int. Conf. on Cooperative Multimodal Communication)*, Tilburg, The Netherlands, January 28–30, 1998.

Seeing on top of the world: Research in augmented reality. *ICASE/LaRC/ARO/NSF Workshop on Computational Aerosciences in the 21st Century*, Hampton, VA, April 22–24, 1998.

Wearing it out: First steps toward mobile augmented reality systems. *Informatik '98*, Magdeburg, Germany, September 21–25, 1998.

Wearing it out: First steps toward mobile augmented reality systems. Siemens Corporate Research, Princeton, NJ, November 10, 1998.

The 1968 Columbia revolt as told by the Mobile Journalist's Workstation (with J. Pavlik). *Columbia University Seminar on Computers, Man, and Society,* New York, NY, November 18, 1998.

Wearing it out: First steps toward mobile augmented reality systems. Microsoft Research, Redmond, WA, December 10, 1998.

Wearing it out: First steps toward mobile augmented reality systems. *ISMR '99 (First International Symposium on Mixed Reality)*, Yokohama, Japan, March 9–11, 1999.

Wearing it out: First steps toward mobile augmented reality systems. Sony Computer Science Laboratory, Tokyo, Japan, March 12, 1999.

Wearing it out: First steps toward mobile augmented reality systems. Shell Distinguished Lecturer Series, Department of Computer Science, Texas A&M University, College Station, TX, March 31, 1999.

A prototype mobile augmented reality system. *Defense Science and Technology Seminar on Emerging Technologies: Augmented Reality for the Mobile Warfighter.* (Sponsored by Deputy Under Secretary of Defense for Science and Technology; Chief of Naval Research, ONR; Director, DARPA.) Arlington, VA, April 9, 1999.

Research in augmented reality. Columbia University Double Discovery Program for Tenth Graders, New York, NY, April 16, 1999.

Wearing it out: First steps toward mobile augmented reality systems. IBM T.J. Watson Research Center, Hawthorne, NY, April 30, 1999.

Wearing it out: First steps toward mobile augmented reality systems. *1999 Eurographics Workshop on Virtual Environments*, Vienna, Austria, May 31–June 1, 1999.

Wearing it out: First steps toward mobile augmented reality systems. New York SIGCHI Chapter, New York, NY, June 14, 1999.

Thinking on our feet: Wearable computing and artificial intelligence. *AAAI '99 (Sixteenth National Conf. on Artificial Intelligence)*, Orlando, FL, July 18–22, 1999.

Environment management. *DARPA/NIST/NSF Workshop on Research Issues in Smart Computing Environments*, Atlanta, GA, July 25–26, 1999.

Mobile augmented reality for the urban explorer. *UM3 '99 (Urban Multi-Media/3D Mapping)*, University of Tokyo, Tokyo, Japan, September 30–October 2, 1999. (Abstract appears as S. Feiner, Mobile augmented reality for the urban explorer. *Proc. UM3 '99 (Int. Workshop on Urban 3D/Multi-Media Mapping),* Tokyo, Japan, September 30–October 2, 1999, 127–129.)

Wearing it out: First steps toward mobile augmented reality systems. New York Academy of Sciences, New York, NY, October 12, 1999.

Wearing it out: First steps toward mobile augmented reality systems. Alias|wavefront, Toronto, Canada, November 1, 1999.

Wearing it out: First steps toward mobile augmented reality systems. Computer Science Colloquium Series. University of Toronto, Department of Computer Science, Toronto, Canada, November 2, 1999.

Wearing it out: First steps toward mobile augmented reality systems. Computer Graphics Lab, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, November 25, 1999.

Wearing it out: First steps toward mobile augmented reality systems. Philadelphia SIGCHI Chapter, Philadelphia, PA, January 12, 2000.

Wearing it out: First steps toward mobile augmented reality systems. Computer Science Colloquium Series. University of Alberta, Department of Computing Science, Edmonton, Canada, January 21, 2000.

Discussant, *Invisible Computing: Designing for Hidden Devices,* New York ACM SIGGRAPH and Digital Image Design, New York, NY, February 18, 2000.

Wearing it out: First steps toward mobile augmented reality systems. Distinguished Lecture Series on the Future of Human-Computer Interaction. Oregon Graduate Institute of Science and Technology, Beaverton, OR, May 19, 2000.

User interface research at Columbia University. MIT Enterprise Forum, New York, NY, October 25, 2000.

Mobile augmented reality systems. Distinguished Lecture Series in Pervasive Information Systems. Depts. of Electrical Engineering and Computer Science, Princeton University, Princeton, NJ, April 20, 2001.

Mobile augmented reality systems. *GASA Summer Seminar 2001,* Universidade Nova de Lisboa, Lisbon, Portugal, June 6, 2001.

Mobile augmented reality systems. *Computer Science and Digital Communication Seminar,* Universitat Pomeu Fabra, Barcelona, Spain, June 12, 2001.

Environment management for augmented reality. *Triangle Computer Science Distinguished Lecturer Series,* Chapel Hill/Durham/Raleigh, North Carolina, November 5, 2001.

Environment management for mobile augmented reality systems. *Distinguished Lecture Series,* Computer Science Department, State University of New York, Stony Brook, NY, December 14, 2001.

Mobile augmented reality systems. Centro per la Ricerca Scientifica e Tecnologica, Istituto Trentino di Cultura, Povo, Italy, May 20, 2002.

The edges of wayfaring. *SEGD 2002 (Soc. for Environmental Graphic Design 2002 Annual Conference),* Denver, CO, May 29–June 1, 2002.

Mobile augmented reality systems. INRIA Rhone-Alpes, Saint-Ismier Cedex, France, June 18, 2002.

Mobile augmented reality systems. *VRIC 2002 (Virtual Reality Int. Conf.)*, Laval, France, June 19–21, 2002.

Augmented reality. *Beyond Mapping: The Challenges of New Technologies in the Geographic Information Sciences*, National Research Council Mapping Science Committee, The National Academies, Washington DC, August 22–23, 2002.

Mobile augmented reality systems. *GIScience 2002 (Second Int. Conf. on Geographic Information Science)*, Boulder, CO, September 25–28, 2002.

Mobile augmented reality systems. *Workshop on Intelligent Human Augmentation and Virtual Environments,* University of North Carolina, Chapel Hill, NC, October 17–18, 2002.

Merging image and reality in augmented reality. *The (Re)Structured Screen,* Eyebeam Atelier, New York, NY, November 11, 2002.

User interface design for wearable augmented reality systems. IBM T.J. Watson Research Center, Hawthorne, NY, December 6, 2002.

Keynote: Mobile augmented reality systems. *MUM 2002 (First Int. Conf. on Mobile and Ubiquitous Multimedia),* Oulu, Finland, December 11–13, 2002.

User interface design for wearable augmented reality systems. *Human Computer Interaction Seminar Series*, HCI Institute, Carnegie Mellon University, Pittsburgh, PA, February 12, 2003.

User interface design for wearable augmented reality systems. *Distinguished Seminar Series*, Electrical and Computer Engineering, Rutgers University, New Brunswick, NJ, March 12, 2003.

Keynote: Taking it to the streets: How virtual reality will change mobile computing. *IEEE Virtual Reality 2003*, Los Angeles, CA, March 22–26, 2003. (*Proc. IEEE Virtual Reality 2003,* IEEE Computer Society Press, 2–3.)

User interface design for wearable augmented reality systems. *Geospatial Intelligence Information Visualization Researchers Meeting,* Advanced Research and Development Activity, Monterey, CA, April 29, 2003.

Wearable augmented reality systems. *2nd CREST Workshop on Advanced Computing and Communicating Techniques for Wearable Information Playing,* Nara Institute of Science and Technology, Nara, Japan, May 23–24, 2003.

Taking it to the streets: How virtual reality will change mobile computing. *The 21st IEEE Kansai Section Lecture*, Osaka University, Osaka, Japan, May 26, 2003.

User interfaces for mobile augmented reality systems. *VVG 2003* (*First Int. Conf. on Vision, Video and Graphics*), Institute of Mathematics and its Applications, Bath, UK, July 10–11, 2003. (Abstract appears as S. Feiner, User interfaces for mobile augmented reality systems. In P. Hall and P. Willis (eds.), *Proc. Vision, Video, and Graphics 2003*, Eurographics Association, Aire-la-Ville, Switzerland, 2003, 125–126.)

Keynote: Augmented reality for architecture and construction: Early prototypes and future musings. *CONVR 2003 (Conference on Construction Applications of Virtual Reality)*, Blacksburg, VA, September 24–26, 2003.

Augmented reality for augmented space. *Augmented Space: Media Art for an Urban Environment,* Lower Manhattan Cultural Council, New York, NY, November 25, 2003.

AR/VR for enhanced-reality mobile communication. *NTT DoCoMo 4G Tech Forum*, NTT DoCoMo Research and Development Center, Yokosuka, Japan, March 15, 2004.

Taking it to the streets: How virtual reality will change mobile computing. *HCI Forum Inaugural Distinguished Lecture,* Iowa State University, Ames, Iowa, April 15, 2004.

Keynote: Turning VR inside out: Thoughts about where we are heading. *VRST 2004* (*ACM Symp. on Virtual Reality Software and Technology*), Hong Kong, November 10–12, 2004.

TBA. *HCI Seminar Series*, Computer Science and Artificial Intelligence Laboratory, MIT, Cambridge, MA, April 22, 2005.

Keynote: TBA. *GIS Planet 2005* (*Second Int. Conf. and Exhibition on Geographic Information*), Estoril, Portugal, May 30–June 2, 2005.

AWARDS

American Society for Training and Development 1990 Instructional Technology Research Award (with K. McKeown).

1991 Office of Naval Research Young Investigator Award.

Honorable Mention, 1996 American Institute for Architectural Research/Architecture Awards for Architectural Research (with A. Webster, B. MacIntyre).

SERVICE: EDITORIAL BOARDS & PROFESSIONAL ORGANIZATIONS

Member of editorial board, *Electronic Publishing* (Wiley) (since 1988)

Member of editorial board, *Kluwer International Series on Human-Computer Interaction* (since 2002)

Member of editorial board, *Virtual Reality (Journal of the Virtual Reality Society)* (Springer) (since 1994)

Associate editor, *ACM Transactions on Graphics* (1995–2004)

Member of editorial board, *IEEE Transactions on Visualization and Computer Graphics* (1994–2000)

Associate editor, *ACM Transactions on Information Systems* (1990–1995)

Member of executive board, IEEE Computer Society Technical Committee on Visualization and Graphics (since 1993)

Member of executive committee, IEEE Computer Society Task Force on Human-Centered Information Systems (since 1997)

Member of steering committee, *ACM Symposium on Virtual Reality Software and Technology* (since 2004)

Member of steering committee, *IEEE Symposium on Information Visualization* (since 1997)

Member of steering committee, *IEEE and ACM International Symposium on Mixed and Augmented Reality* (since 2000)

Member of steering committee, IEEE Computer Society Technical Committee on Wearable Information Systems (since 2001)

Member, ACM Scholars' Advisory Group (1994)

Member, Dexter Hypertext Research Group (1988–90)

Participant, 1990 DARPA Workshop on Intelligent Documentation

Participant, 1991 DARPA ISAT Summer Study on Intelligent Interfaces

Member, 1992 National Research Council NRL Workshop in Computer Sciences and Artificial Intelligence

Invited participant, ACM SIGGRAPH Future Search Conference (1994)

Member, *IEEE Transactions on Visualization and Computer Graphics* Editor-in-Chief Search Committee (1994)

Member, NRC CSTB Workshop, ''Towards an Every-Citizen Interface to the National Information Infrastructure'' (1996)

Member, IBM Mobile Computing Scientific Advisory Board (since 1996)

Panelist, NIH and NSF Workshop on Visualization Research Challenges (2005)

Panelist for NSF, NRL

SERVICE: CONFERENCES AND WORKSHOPS

Member of organizing and program committees, *AAAI-88 Workshop on AI and Hypertext*

Member of organizing and program committees, *IJCAI-89 Workshop on Intelligent Interfaces*

Member of program committee, *ACM Hypertext '89*

Member of program committee, *ACM COIS '90 (Office Information Systems)*

Member of program committee, *ACM UIST '90 (User Interface Software and Technology)*

Member of program committee, *AAAI-91 (Ninth National Conf. on Artificial Intelligence)*

Member of organizing and program committees, *AAAI-91 Workshop on Intelligent Multimedia Interfaces*

Member of program committee, *ACM COCS '91 (Organizational Computing Systems)*

Member of program committee, *ACM UIST '91 (User Interface Software and Technology)*

Member of program committee, *ACM Hypertext '91*

Corresponding member of papers program committee, *ACM CHI '92 (Human Factors in Computing Systems)*

Member of demonstrations program committee, *ACM CHI '92*

Member of program committee, *AVI '92 (Advanced Visual Interfaces)*

Member of program committee, *ACM UIST '92 (User Interface Software and Technology)*

Member of program committee, *1993 International Workshop on Intelligent User Interfaces*

Associate papers chair, *INTERCHI '93 (ACM CHI '93 + IFIP INTERACT '93)*

Member of demonstrations program committee, *INTERCHI '93 (ACM CHI '93 + IFIP INTERACT '93)*

Member of program committee, *AAAI-93 (Eleventh National Conf. on Artificial Intelligence)*

Co-chair of program committee, *ACM Multimedia '93*

Member of program committee, *ACM OOPSLA '93 (Object-Oriented Programming Systems, Languages, and Applications)*

Co-chair of symposium, *IEEE 1993 Symposium on Research Frontiers in Virtual Reality*

Member of organizing and program committees, *AAAI Spring '94 Symposium on Intelligent Multi-Media Multi-Modal Systems*

Associate papers chair, *ACM CHI '94 (Human Factors in Computing Systems)*

Member of organizing and program committees, *Digital Libraries '94*

Member of program committee, *AVI '94 (Advanced Visual Interfaces)*

Co-chair of program committee, *ACM VRST '94 (Virtual Reality Software and Technology)*

Member of program committee, *IEEE Visualization '94*

Chair of program committee, *ACM UIST '94 (User Interface Software and Technology)*

Co-chair of program committee, *IEEE VRAIS '95 (Virtual Reality Annual International Symposium)*

Member of program committee, *ACM 1995 Symposium on Interactive 3D Graphics*

Member of program committee, *1995 International Workshop on Virtual Reality and Scientific Visualization*

Member of program committee, *ACM CHI '95 (Human Factors in Computing Systems)*

Member of papers committee, *ACM SIGGRAPH '95*

Member of program committee, *Eurographics '95*

Member of program committee, *IEEE Visualization '95*

Member of program committee, *ISOTAS '96 (International Symposium on Object Technologies for Advanced Software)*

Member of program committee, *IEEE VRAIS '96 (Virtual Reality Annual International Symposium)*

Member of papers meta-review committee, *ACM CHI '96 (Human Factors in Computing Systems)*

Member of papers committee, *ACM SIGGRAPH '96*

Member of program committee, *IEEE Visualization '96*

Member of extended program committee, *ACM Multimedia '96*

Member of program committee, *IEEE VRAIS '97 (Virtual Reality Annual International Symposium)*

Member of program committee, *Graphics Interface '97*

Member of program committee, *Computer Graphics International '97*

Member of technical sketches committee, *ACM SIGGRAPH '97*

Member of program committee, *IJCAI '97 Workshop on Intelligent Multimodal Systems*

Co-chair of program committee, *ACM VRST '97 (Virtual Reality Software and Technology)*

Member of program committee, *1997 Int. Symp. on Wearable Computers*

Member of program committee, *IEEE Visualization '97*

Member of symposium committee, *IEEE Information Visualization '97*

Member of program committee, *IUI '98 (Int. Conf. on Intelligent User Interfaces)*

Member of program committee, *1998 Int. Conf. on Web-Based Modeling & Simulation* (*1998 SCS Western Multiconf. on Computer Simulation*)

Member of program committee, *IEEE VRAIS '98 (Virtual Reality Annual International Symposium)*

Associate papers chair, *ACM CHI '98 (Human Factors in Computing Systems)*

Member of papers committee, *ACM SIGGRAPH '98*

Member of program committee, *CVIR '98 (ACL/COLING '98 Workshop on Content Visualization and Intermedia Representations)*

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Member of program committee, *ACM VRST '98 (Virtual Reality Software and Technology)*

Member of program committee, *IEEE Visualization '98*

Member of program committee, *IEEE ISWC '98 (Int. Symp. on Wearable Computers)*

Member of program committee, *IEEE IWAR '98 (Int. Workshop on Augmented Reality)*

Member of program committee, *IUI '99 (Int. Conf. on Intelligent User Interfaces)*

Member of conference committee, *ISMR '99 (First Int. Symp. on Mixed Reality)*

Member of program committee, *IEEE Virtual Reality '99 (formerly IEEE VRAIS)*

Member of program committee, *EGVE '99 (Eurographics Workshop on Virtual Environments '99)*

Member of program committee, *IEEE and ACM IWAR '99 (Int. Workshop on Augmented Reality)*

Member of program committee, *ACM UIST '99 (User Interface Software and Technology)*

Member of program committee, *IEEE Visualization '99*

Member of program committee, *IUI 2000 (Int. Conf. on Intelligent User Interfaces)*

Member of program committee, *AAAI Spring 2000 Symposium on Smart Graphics*

Co-chair of program committee, *IEEE Virtual Reality 2000*

Co-chair of best paper awards committee, *IEEE Virtual Reality 2000*

Member of program committee, *DARE 2000 (Designing Augmented Reality Environments)*

Member of program committee, *Pacific Graphics 2000*

Member of program committee, *IEEE Visualization 2000*

Member of program committee, *IEEE Information Visualization 2000*

Member of program committee, *IEEE and ACM ISAR 2000 (Int. Symp. on Augmented Reality)*

Co-chair of program committee, *ISMR 2001 (Second Int. Symp. on Mixed Reality)*

Member of program committee, *IEEE Virtual Reality 2001*

Member of best paper awards committee, *IEEE Virtual Reality 2001*

Member of program committee, *Smart Graphics 2001*

Member of program committee, *VAA '01 (Int. Symp. on Virtual and Augmented Architecture)*

Associate papers chair, *ACM CHI 2001 (Human Factors in Computing Systems)*

General chair of symposium, *IEEE Information Visualization 2001*

Member of program committee, *IEEE Information Visualization 2001*

General co-chair of symposium, *IEEE and ACM ISAR 2001 (Int. Symp. on Augmented Reality)*

Member of program committee, *Pacific Graphics 2001*

Member of program committee, *IUI 2002 (Int. Conf. on Intelligent User Interfaces)*

Associate papers chair, *ACM CHI 2002 (Human Factors in Computing Systems)*

Member of program committee, *First Int. Symp. on 3D Data Processing, Visualization and Transmission 2002*

Member of program committee, *IEEE Virtual Reality 2002*

Member of program committee, *Smart Graphics 2002*

Member of program committee, *CODATA Workshop on Information Visualization, Presentation, and Design 2002*

Member of papers committee, *ACM SIGGRAPH 2002*

Member of program committee, *IEEE and ACM ISMAR 2002 (Int. Symp. on Mixed and Augmented Reality)*

Member of program committee, *IEEE Information Visualization 2002*

Member of best paper awards committee, *IEEE Information Visualization 2002*

Member of program committee, *IUI 2003 (Int. Conf. on Intelligent User Interfaces)*

Member of program committee, *ACM 2003 Symposium on Interactive 3D Graphics*

Member of program committee, *IEEE Virtual Reality 2003*

Member of program committee, *Virtual Reality International Conference 2003*

Member of program committee, *WWW 2003 Hypermedia track*

Member of program committee, *Smart Graphics 2003*

Member of papers committee, *ACM SIGGRAPH 2003*

Co-chair of program committee, *IEEE ISWC 2003 (Int. Symp. on Wearable Computers)*

Member of program committee, *IEEE and ACM ISMAR 2003 (Int. Symp. on Mixed and Augmented Reality)*

General chair of conference, *ACM UIST 2004 (User Interface Software and Technology)*

Member of program committee, *IEEE Virtual Reality 2004*

Member of program committee, *IUI 2004 (Int. Conf. on Intelligent User Interfaces)*

Member of program committee, *CADUI 2004 (Computer-Aided Design of User Interfaces)*

Member of program committee, *Smart Graphics 2004*

Member of program committee, *IEEE ISWC 2004 (Int. Symp. on Wearable Computers)*

Area chair for program committee, *IEEE and ACM ISMAR 2004 (Int. Symp. on Mixed and Augmented Reality)*

Member of program committee, *ACM VRST '04 (Virtual Reality Software and Technology)*

Associate papers chair, *ACM CHI 2005 (Human Factors in Computing Systems)*

Member of program committee, *Smart Graphics 2005*

Area chair for program committee, *IEEE and ACM ISMAR 2005 (Int. Symp. on Mixed and Augmented Reality)*

Member of program committee, *ACM VRST '05 (Virtual Reality Software and Technology)*

PH.D. STUDENTS

Dorée Seligmann, *Interactive Intent-Based Illustration* (defended March 3, 1993; now at Avaya Labs)

David Kurlander, *Graphical Editing by Example* (defended March 31, 1993; now at Microsoft)

Michelle Zhou, *Automated Generation of Visual Discourse* (defended October 9, 1998; now at IBM T.J. Watson Research Center)

Blair MacIntyre, *Exploratory Programming of Distributed Augmented Environments* (defended December 17, 1998; now at Georgia Institute of Technology)

Tobias Höllerer, *User Interfaces for Mobile Augmented Reality Systems* (defended May 5, 2003; now at UC Santa Barbara)

CONSULTING

2000−2001, Phone.com, Inc.: Phone.com, Inc. v. Geoworks Corporation, Case No. C 00-1440 MHP (United States District Court for the Northern District of California), Consultant.

2001−2002, Macromedia Inc.: Adobe Systems Inc. v. Macromedia, Inc., Civil Action No. 00-743 JJF (United States District Court for the District of Delaware), Consultant and testifying expert witness.

2002−2002, Macromedia Inc.: Macromedia Inc. v. Adobe Systems, Inc., Case No. C 01-3940 SI (United States District Court for the Northern District of California), Consultant.

2002−2003, Gateway, Inc.: Lucent Technologies Inc. v. Gateway, Inc., Consultant.

2003–2003, Microsoft Corporation: HyperPhrase Technologies, LLC and HyperPhrase Inc. v. Microsoft
Corporation (United States District Court for the Western District of Wisconsin), Consultant.

2003–2004, Canon Inc.: St. Clair Intellectual Property Consultants, Inc. v. Canon Inc. et al., No. 03-241 JFF (United
States District Court for the District of Delaware), Consultant and testifying expert witness.

2004–2005, Intergraph Corp.: Hewlett-Packard v. Intergraph Corp. Civil Action No. 604-CV-374 (Tyler Division),
Consultant.